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Geography is the science of the description of the earth from the standpoint of human needs

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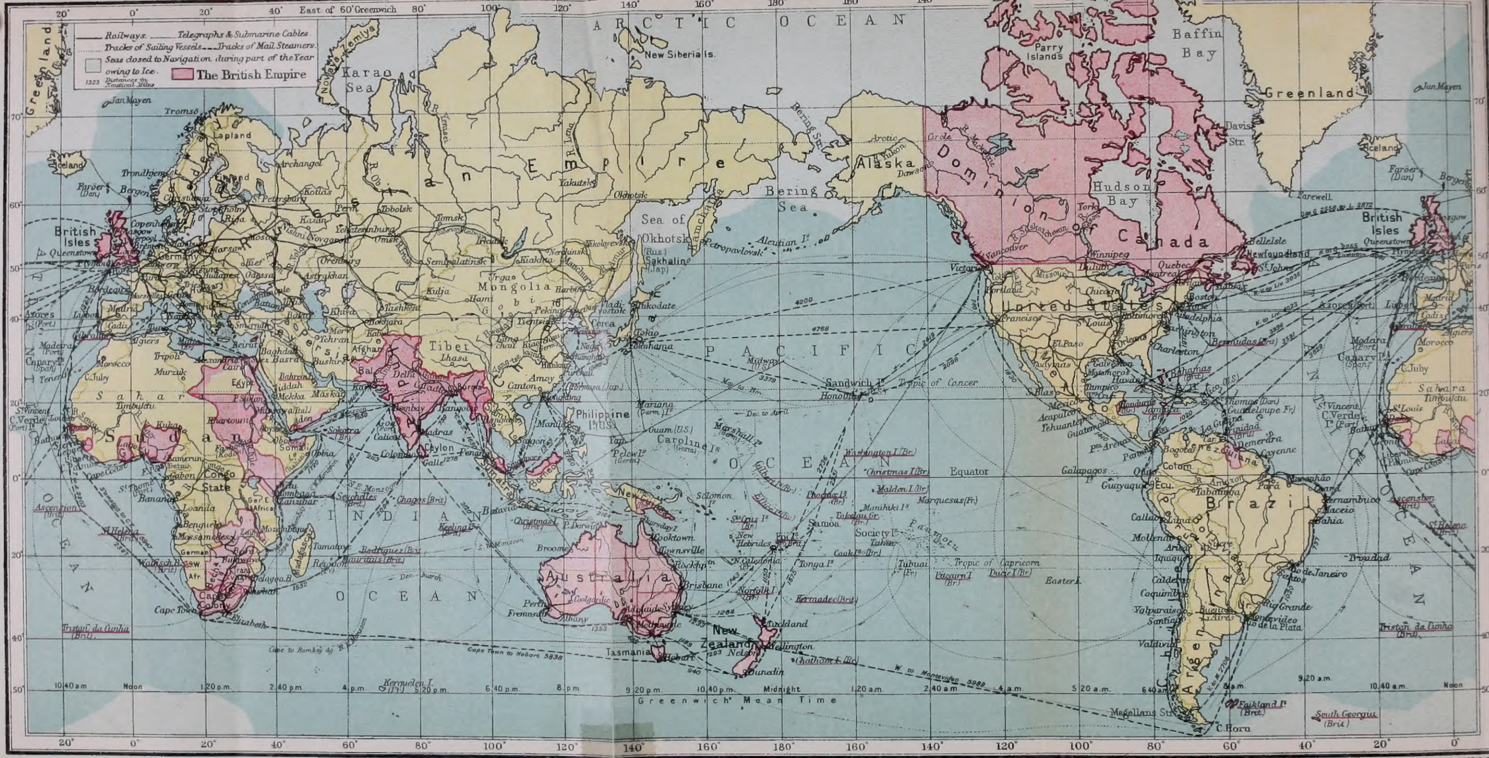
THE WORLD shewing GREAT COMMERCIAL HIGHWAYS



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APPLIED GEOGRAPHY

A PRELIMINARY SKETCH.

WITH TEN MAPS.

BY

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PREFACE TO THE SECOND EDITION.

This is not a text-book of Commercial Geography. The use of such terms as Commercial Geography, Political Geography, &c., is I think unfortunate, as it leads to the impression that there are so many different kinds of Geography. The subject is the same to whatever practical purpose it may be applied, and therefore I prefer the comprehensive term, "Applied Geography."

The first edition of the book was published in 1890, and much has happened since to raise the standard of Geography in this country, and to improve its position in Education. Moreover, many changes have taken place as a result of the increased enterprise of the ruling nations in developing the resources of the lands of the globe, and in annexing such areas as were available for the purpose. All this has necessitated a thorough revision of the book, and many sections have had to be re-written; a new chapter has been added on "The Unstaked Globe," by permission of the

Editor of the *London Magazine.* The object of the publication is to shew what, in my estimation, are some of the bearings of geographical knowledge on human interests; on the course of history, but more especially on industry, commerce, and colonization. The first two chapters deal with general *data* and methods, which are illustrated in the following chapters with special reference to Africa, the British Empire, the world at large some of the chief commodities of Commerce, and the lands still available for European and American enterprise. The book is really a series of suggestions and examples. It may prove of some use to teachers and others desirous of making the most of Geography, and, it is hoped, may have some interest for intelligent readers generally. What I regard as the field of Geography may be learned from the first chapter.

J. SCOTT KELTIE.

1, SAVILE ROW, W.,
May, 1908.

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APPLIED GEOGRAPHY.

CHAPTER I.

PRELIMINARY CONSIDERATIONS.

Recent developments in the Conception of Geography—Anthropogeography—British Islands—Holland—Early river civilizations—Buckle and Green—What is Geography?—Man and his surroundings—Geography and colonization—Types of Colonies—Commerce.

THE efforts which have been made during the last twenty-five years to raise geography from the low estate into which it had fallen in this country, both as a field of research and as a subject of education, have been attended with a gratifying measure of success. At the Universities of Oxford and Cambridge well-equipped Schools of Geography have been established for several years, and the subject is dealt with on a high platform; it has been introduced into the B.A. Examination, and there is, besides, a diploma which is practically equivalent to honours. At other universities—Manchester, Birmingham, Liverpool, Sheffield, Aberystwith, Edinburgh—lectureships have been established, and other universities and colleges are following suit. The subject has been introduced as a science into the Civil Service Examination, and the standard is the same as that demanded for a diploma at Oxford and Cambridge. Not only has the standard been greatly raised in elementary schools, but the Education Department has issued regulations for the teaching of the subject in secondary schools, and for the examination of teachers who desire the Department's certificate. In other directions the subject has taken firm hold, and throughout the standard has been raised and the sphere broadened beyond recognition by those who were brought up on the arid and repellent textbooks and featureless maps of a quarter of a century ago. All this activity has produced a number of trained specialists who have begun to furnish textbooks, treatises, atlases, and appliances of various kinds far in advance of anything that existed in England before this movement began.

Long before the Royal Geographical Society instituted this movement which has so far been successful, geography, both in its scientific and in its practical aspects, had been worked out in Germany by able men, with rich and abundant results. To leave aside mere textbooks and compendiums of facts, the works dealing with the various applications of the subject that have been produced in Germany during the past half-century would fill many shelves in a library. Ever since Ritter's time a specially human turn has been given to the subject by his countrymen; it has been recognised that the ultimate task of geography is to study the earth as a dwelling-place of humanity. This view has become more and more accepted in Germany, and has given rise to a special section of the general subject under the name of Anthropogeography, which may be said to include everything bearing on the interaction between man and his topographical surroundings. Geography has been well described by Mr. H. J. Mackinder as the physical basis of history; it is indeed the physical basis of all human activity. For does it not deal with the surface of the earth, with its manifold features of mountain and tableland, plain and desert, ocean and lake and river, forest and prairie, continents and islands, air and rain and sunshine (the elements of climate), in all their complicated combinations, which, forming man's immediate environment, must largely influence his activities in all directions? It is the thorough grasp of this aspect of the subject which in the hands of Ritter, Peschel, and their followers, has proved so increasingly fruitful of results in Germany.

England, however, has never been without her monumental productions in geography. Let us not forget the unrivalled collections of Hakluyt and Purchas, and their many successors, which, filling scores of folios and quartos, form the raw material of geography, and are infinitely more interesting and more profitable reading than 99 per cent. of the slender travellers' tales with which we are surfeited at the present day. The deeds of our daring forefathers, as they forced their fearless way into every corner of the globe, quite as often, it is true, in the character of buccaneers as of explorers, receive worthy record in these great collections. Nor is this all. In the past two centuries this raw material has been worked up into systematic treatises, filling many more quartos and folios, which present the facts in copious and instructive detail so far as they were known at the time. But even this geographical history has ceased in England for many years; when we wanted such treatises we had to import them from abroad; we had to adapt an intensely German Hellwald, or translate the masterly descriptions of Reclus. With all the wealth of material at our command, we had still to find a geographer capable of analyzing it, and elaborating it from the philosophical, or scientific, or anthropogeographical standpoint. It is to be hoped that this depressing period in the history of geography in England is now passed. But if our geographers were blind to the capabilities of their science, we were not without men having knowledge and insight enough to perceive the intimate bearings of geographical conditions on collective humanity, on man in his strivings after political, social and industrial development. Our own literature can furnish us with brilliant examples of the successful application of geography to the interpretation of history and the elucidation of the progress of civilization.

Readers of Green must recall his "Making of England." His graphic picture of the dense forests in the south of England, and of the swamps and fens in the east, barring the progress of the invaders into the interior of our island, can never be forgotten by the readers of that fascinating book. These and similar surface obstacles tended seriously to influence the progress and the nature of the conquest, as well as the ultimate distribution and character of the various types which compose the population of the British islands. In the west, owing again to the topography of the country, it took centuries to reduce Wales and its essentially British or Celtic inhabitants, who, had the Teutonic hordes been able to reach them in the first heat of their conquering career, would have been completely crushed, if not destroyed; a Welsh question would have been rendered as impossible as a Kentish or an East-Anglian question. So in the north, it was not till the middle of the 18th century that the essentially Celtic population of the then inaccessible Highlands was subdued by the successors of the Teutonic invaders, and even yet the geographical conditions favour Celtic survivals, and nourish a Crofter question. As for Ireland, her present troubles, which are also ours, are all due to St. George's Channel and her own bogs. Had the subsidence which began in so recent a geological period not proceeded so far; had Ireland and England been still, as of yore, one continuous land, her conquest would have been begun long before it was and would have been at least as complete as that of Wales and Scotland. Not only would the infusion of Teutonic blood have been much greater than it has been, but Ireland would probably have been as ready to succumb to the Reformation as any other part of the United Kingdom.

But, indeed, the geographical position of the British islands—as it has often been pointed out—has had very much to do with the peculiar character of their political, social, and industrial development. Had that subsidence—so recent and so comparatively shallow—not taken place which severed England from the Continent, had the Thames continued to be a tributary of the Rhine, and England only a northern extension of France, how very different would have been the course of European history, and the character of those migrations which, under existing conditions, have peopled the bulk of two continents with English-speaking peoples!

Such are some of the results either brought out or suggested by Green's treatment of English history from the geographical standpoint. The history of any other part of the world treated after the same manner would yield results unattainable where humanity is dealt with apart from its geographical setting. I certainly do not claim that this is the only aspect in which history ought to be studied; but if this important term in the historical problem is neglected, the final equation can never be satisfactory. This will be evident if we remember that geography is essentially the science of topographical distribution on the surface of the earth; the distribution of the great features of the globe and all that its face sustains, including man himself. And if we bear in mind that man is the centre, the converging point of the science, that all its investigations must have ultimate reference to humanity, there will be no danger of including too much within the field of the subject, of encroaching upon what is strictly the sphere of some other department of science. Since, then, much of political history really originates in man's distribution in bodies or communities over the earth's surface, in his movements on that surface, or in other changes in his relation to topographical environment, surely geographical conditions ought to be taken into account by every historian ambitious of being more than a mere chronicler. Most of the so-called historical geographies and historical atlases, some of them by eminent hands, which were till lately in vogue, and are not yet quite ousted by more advanced works, as a rule concerned themselves with mere changes of boundaries, without taking the trouble to inquire whether geography can shed any light on the causes of such changes, and teach nations a lesson for the future. The success which attended Green's effort to discover how far historical events are influenced by geographical conditions, ought surely to show that historical geography may be made something more than a mere question of boundaries. Admirable as was Green's treatment of the subject, he naturally approached from the historian's standpoint. What can be made of it, when dealt with by a trained geographer from the standpoint of geography, will be seen in Mr. Mackinder's "Britain and the British Seas," which may be taken as a sample of the modern conception of the field and standard of geographical investigation.

How much, to take another example, has the peculiar geography of Holland had to do with the moulding of the strange history of that country? An eminent Dutch geographer once lamented to me—he was sorely troubled with rheumatism and asthma at the time—that his country was only a river delta which had been peopled prematurely. But it is just because the inhabitants of this delta have been compelled from its very nature to struggle with their geographical conditions that they have acquired habits which have rendered them the most prosperous and comfortable people in Europe. How splendidly, moreover, did their network of waterways, dominated by the ocean, help them in their long struggle with Spain! And is it not due to the peculiar hydrographic conditions of the country that the Dutch have been for centuries a nation of navigators, traders, and colonizers? Why is it, again, that a poor country like Norway, with almost nothing to export but fish and timber, and whose trade is only one-fifteenth of that of the Netherlands, has a mercantile navy that, in tonnage, is only surpassed by three other powers? From the very nature of their country, broken up into a maze of fjords and islands, more water than land, and facing as it does the great ocean, the Norse are compelled to be a race of sailors; and as they have little or nothing of their own to carry, they have become carriers for the rest of the world.

When applied to what we may call the course of universal history, the progress of civilization, and the development of the world's commerce, geography yields some curious and instructive results. Indeed, from this standpoint, an able Continental writer, the late M. Leon Metchnikoff, divides history into three great periods. The earliest civilizations of which we have any knowledge were what we may designate Fluvial. The great Assyro-Babylonian States were grouped within the region watered by the Euphrates and Tigris—Mesopotamia. Ages ago Egypt was called the "gift of the Nile." The basin of the Ganges may be regarded as the theatre of all the great events of Indian history previous to the advent of Europeans; while the two enormous waterways, the Hoangho and the Yangtse-Kiang, must have had much to do with the development of the peculiar civilization of China. These fluvial civilizations, so long as they remained fluvial, were essentially isolated; they could never become cosmopolitan. From the character of the deltas of the Nile and of the Mesopotamian rivers, the communities on their banks could make no use of them as highways to the ocean. The malarious delta of the Ganges was equally a bar to oceanic intercourse, while the enterprise of China was directed to the plateaux and deserts of Central Asia rather than to the mysterious Pacific which washed its shores. It was only when, partly by pressure from without and partly by human efforts to overcome disadvantageous geographical conditions, Mesopotamia and Egypt were placed in uninterrupted communication with the ocean, that they became Mediterranean

States; for the Persian Gulf is essentially of this character. What intercourse these peoples had before this was carried on almost solely by land. This isolated condition may be said to have ended about 800 B.C. By that time the Phœnicians had begun what may be regarded as the Mediterranean period of history—using the term in its widest sense, as applying not only to the landlocked sea between Europe and Africa, and its offshoots which debouch into the Euxine, but also to the Persian Gulf and the Red Sea on the one hand, and the essentially inland North Sea and Baltic on the other. This Mediterranean period lasted for over 2,000 years, and developed as much cosmopolitanism as was possible within its essentially narrow geographical limits. This period came to an abrupt termination 400 years ago by the discovery of the other half of the globe, and the initiation of what may be regarded as the Atlantic or Oceanic period, during which Europe has been spreading itself out in all directions; the isolation of nations has been broken down, geographical barriers to cosmopolitan intercourse have been or are being swept away, and sanguine philanthropists are hoping that the "federation of the world" is approaching.

All who have read Buckle's "History of Civilization," will remember the brilliant use which he makes, in the famous second chapter of the first volume, of geographical conditions as determining political and industrial development. Egypt is one of the examples which he there works out in detail, the greatness as well as the despotism of which he shows were due entirely to its peculiar geographical conditions. And if, like Buckle and Green, we include in history not merely the vicissitudes of States and the growth of their political institutions, but also their industrial, social, and intellectual development, then the paramount influence of geography becomes unmistakable. Buckle brings this out with his usual brilliance, not only in the case of Egypt, but also of India, Central America, and Peru; and Green, both in his histories and in his "Short Geography of the British Islands," endeavours, with much success, to show how the growth of our industries and the situation of our great cities have been largely determined by conditions which are essentially geographical. Comte was not likely to overlook the intimate relations which subsist between geography and history in its widest sense. "It would be impossible," he wrote, "to conceive of any adequate history of humanity apart from the real history of the terrestrial globe, the inevitable theatre of progressive human activity, and the various conditions of which must certainly have exercised an important influence on the production of the various phases of human history, from the period when the physical and chemical conditions of our planet were such as to permit the continuous existence of humanity." Quite recently, two works published almost simultaneously, deal in detail with the geographical factors that have influenced the history and development of the United States—"American History and its Geographical Conditions," by Miss E. C. Semple; and "Geographical Influences in

American History," by A. P. Bigham. This is a line of research which may be applied to any unit, from a town or a parish to a county or a continent.

It will thus be seen that the important results to be derived from the application of geography to history have been in a general way recognised even in this country. But the application had, until recently, been qualitative rather than quantitative, and mainly because the subject had been approached from the historical and not the geographical standpoint. In Germany, where a voluminous literature is growing up as the fruit of the precise and detailed cultivation of the geographical field, some of the results attained, in their bearings on humanity, have been correspondingly quantitative and tangible. Not only are these results likely to prove of service to the historical student, but their bearings on industry, on commerce, on colonization, are of the most intimate character. Commercial geography, in Germany for example, is something that the merchant and the merchant's clerk can take with him into his office and apply to his everyday transactions, and not the useless thing which until recently went under that name, and to a considerable extent does so still in our own "commercial academies." The vast importance of the subject with reference to the recent colonial enterprise of Germany has been recognised by the publication of a multitude of books on what may be regarded as the economical geography of the various regions which have been brought within the German "sphere of influence.' England's geographical connections (political, colonial, commercial, missionary) are world-wide, and her politicians, her merchants and manufacturers, and all who are interested in the development of her colonies, could not but profit by a complete and precise knowledge of those conditions upon which the success of their operations so largely depends.

Geography, as I have stated, may be defined as the science of the topographical distribution of the great features of the earth's surface, and of all that it sustains—mineral, vegetable, and animal, including man himself. If we bear in mind that, as geographers, it is distribution and not constitution, groups and not individuals, we have to do with, we shall be able to limit our field within reasonable compass. This one feature of distribution will be found to be applicable to every section of our wide subject; for of course it includes causes as well as facts, relations as well as positions. It will guide us in dealing with the whole subject in a scientific spirit and on scientific lines, not only with the physiographical side, as the Americans would call it, though the expression physical geography is quite adequate, but with every other aspect of the subject. What is political geography but the department which deals with the distribution of men into communities or states? While commercial geography—the "science of distances," as a German writer calls it—has to do with the distribution (in a double sense) of the economical products of the earth's surface.

In short, one great task of geography in its advanced stage is to investigate the interaction between humanity and its geographical environment. As the term "interaction" implies, man is in a different position with reference to his environment from any other creature on the earth's surface. The lower animals can do so very little to modify their environment, that it amounts to practically *nil.* Man in his savage state is in this respect almost on a par with his humbler fellow-creatures. He must either adapt himself to his geographical conditions, or succumb to them. Buckle brings this out strikingly in his second chapter with reference to South America. Contrasting the condition of Brazil before the European intrusion with that of Peru and other civilized States, he maintains that the primeval forests of Brazil were on such a gigantic scale, their trees so towering, so close-set, so matted with creepers, and so embedded in bush, that the poor savages who peopled the country were overwhelmed with hopelessness. Though Buckle exaggerated the extent to which Brazil is covered with forests, there is no doubt much truth in his contention. But it seems to me there were other causes at work here, apart from the gigantic scale of Nature, to account for the savage stagnation of most of South America. In the geographical conditions there was a lack of stimulus to united action for the development of the country, or the stimulus was not strong enough to act effectively on the low state of intelligence of the natives. Why was it that those wonderful civilizations were developed on the banks of the Nile and the Euphrates, the Ganges and the Hoangho, while the exuberant basins of the Amazons and the

Congo remained stagnant in the hands of savages? This is doubtless partly to be accounted for by the fact that the people into whose hands the one set of rivers fell were of a very different type from those whose petty tribes lived in a state of constant war with each other on the banks of the Congo and the Amazons. But it is also, doubtless, in part accounted for by the fact that on both these rivers food was so abundant that one of the most powerful stimuli to united action, especially in an enervating tropical region, was wanting; and no country can ever be developed, except to a very limited extent, by isolated action.

What can be affected by the introduction of a different type of people into an environment that either overwhelmed its primitive population, or from which they were able to glean but a scanty sustenance, may be seen in any part of the globe. As civilization advances, indeed as one condition of its advance, man has been more and more able to combat and modify the natural influences of his geographical environment, though of course there are limits to this, and it ought to be the business of geography to discover what these limits are. Thus, for example, distances form one of the elementary factors with which we have to deal in studying the surface of the earth, and the enormous contraction of distances accomplished by the application of steam to locomotion, and the discovery of the electric telegraph, has been a potent aid to man in modifying some of the geographical conditions to which he has to adapt himself. The piercing of an obstructive isthmus may effect a radical change in the geographical conditions which influence commerce. The construction of the Suez Canal has restored to the Mediterranean that commercial activity which was diverted by the discovery of the Cape route. By disafforesting here and planting there, we have been able appreciably to modify rainfall, and thereby climate. Insanitary regions, fatal to the European constitution, have been sweetened and rendered wholesome by transplanting the Eucalyptus from Australia. Arid deserts have been rendered fruitful by judicious irrigation and storage. Railways and steamers, by bringing sanatoria within a few hours' distance, and home itself within reach of a short holiday, have rendered it possible for Europeans to live and work in the tropics. Such are some of the directions in which inventive humanity has been able to modify its geographical conditions, and render them more easily adaptable to its requirements.

And this suggests the important services which geography may render when applied to Colonial enterprise. Some twenty-five years ago, in their eagerness to divide the world up into colonies, and protectorates, and "spheres of influence," European nations lost their heads. They grabbed blindly at whatever lands remained unannexed, apparently regardless of their adaptability, and as if anxious only to add as many square miles as possible to the statistics of their foreign possessions. Germany, for example, acquired in Africa about a million square miles, much of it either more or less desert or ill-adapted for European colonization ; and France tried to conjure into instantaneous existence a rival to our Indian Empire, in a region where the geographical conditions are totally different, at the same time forgetful of the fact that British India has been the slow growth of two centuries.

But what are some of the geographical problems to be solved in connection with colonization? If we bear in mind that colonies may be divided into two classes, and that the key-word of geography is Distribution, it will help us to answer the question. There are, first, what the French call Colonies of Exploitation—in other words, Plantations; and, secondly, Colonies of Settlement, or those adapted to receive a new population from the mother-country and elsewhere. The former, as M. Leroy Beaulieu points out, are adapted to a wealthy country, with no surplus population, while the latter demand a constant excess of population, as well as a certain amount of capital. Nearly all the foreign possessions of France and Germany and those of Holland are of the former type, while those of England embrace colonies of both types. The first question to answer with reference to any colony is, to which of these two types does it belong? And this, it should be remembered, is not always a question of latitude, though as a rule it is; for in Brazil we find colonies of Germans and Swiss, who work and flourish as if in their native land. But then it should be remembered that the altitude of the Brazilian table-land counteracts the natural results of latitude. Such colonies would be impossible on the low-lying coast. We have been told by enthusiasts that even in the plateau-land, if not, indeed, in the lowlands, of tropical Africa there is no reason why Europeans should not work and retain their health; others, again, tell us that European labour in tropical Africa is impossible. But the problem of the possibility of adapting the European constitution to tropical conditions has yet to be fully investigated and solved. The discovery of methods of dealing with the malarial mosquito has gone some way to solve it. In this connection it is of interest to learn that in the construction of the Panama Canal some 10,000 Europeans (Italians, Spanish and Portuguese) are engaged in doing the hard manual labour, instead of the ineffective West Indian negroes formerly employed, while hundreds of Englishmen and Americans are engaged during the whole of the tropical day in carrying out other sections of the work.

Even if the Central African plateau were proved suitable to the European constitution, the geographer would have to tell us wether it could be turned to any account, whether it were within the region of abundant or the region of scanty rainfall; still more, if anything could be produced therein which would be wanted by the outside world, and if so, whether there are means of taking it to where it is required, without weighting it beyond possibility of profit with expenses of conveyance. As a rule, so far as our experience has gone, tropical colonies can only be colonies of exploitation or plantations; and the question which geography should help to solve is, under what conditions can they be turned to account, or exploited, by the country to which they are annexed. Here, again, it is largely a question of distribution. What are the great physical features of the colony and their distribution, and how do they help or hinder its exploitation ? What is the nature of the climate ? What is the distribution of temperature and rainfall in space (*i.e.*, with reference to the various physical features) and in time ? What native products are there, and how are they distributed, especially with reference to accessibility and communications and can they be worked and brought to market at a rate that will place them in favourable competition with similar products from other parts of the world ? What is the distribution and character of the soil, and for what exotic products is it adapted ? This last is an all-important question, for the mere collection of the natural vegetable and animal products of a tropical region will only develop a colony within very narrow limits. Then comes the subject of population and its distribution. For a colony of the plantation kind this is a critical question, as it involves at once that of labour, without which, in abundance, the colony is a barren possession. If the natives cannot be induced to give themselves voluntarily to systematic labour, there are evidently only two courses open if the colony is to be carried on at all —they must either be compelled to work, or labour must be imported from the outside. Germany seems inclined to solve this ever-recurring difficulty, so far as her East African possessions are concerned, after the former fashion, and in the Congo Free

State it has been carried out to a disastrous extent; in Mauritius and others of our colonies we have adopted the latter alternative. Either course is attended with danger and difficulties, and too often involves what is simply a form of slavery.

But in order that a plantation colony may be worked effectively, white supervision is absolutely necessary; and here again we are faced with another question of distribution—the distribution of men adapted to the conditions of Europe, over a region in which the conditions are entirely different. It is well to repeat that it is not the business of geography to deal with individuals, but with groups; it is the function of the physiologist to investigate the action of climate on the individual constitution, just as we look to the meteorologist to provide us with the data from which we may draw conclusions as to climate. The geographer has to do with results in both cases; given certain conditions of topography and certain types of men, what is the ratio of adaptability of the one to the other.

Such are some of the directions in which geography may yield valuable help when applied to colonies of the plantation class; and the field thus covered embraces to some extent colonies of settlement, colonies of the type of Australia, Canada, and South Africa. Here the problem of adaptability must be worked out on a much larger scale; it is no mere question of the temporary residence of a few directing Europeans, but the wholesale transference of a people from one set of geographical conditions to another. Evidently the first thing to do is to discover in the minutest detail what are these geographical conditions, how far they can at once be turned to service by a new population, and how far they must be modified in order that the colony may be carried to its maximum development. What, for example, is the distribution of rainfall and of surface water (rivers, lakes, &c.) over such a continent as Australia? Before inducing farmers to migrate to any particular district, it would be only fair to let them know how far that district is adaptable to their requirements. Is the soil suited for agricultural operations, and, if so, is there a certainty of the minimum supply of rainfall necessary to render such operations successful? If not, is irrigation possible? If all these conditions are favourable, what about communications, and what about sanitary conditions? All this implies a very thorough and detailed and long-continued geographical study of a colony, and much more minute and ample information than is generally furnished by emigration agents. We are told by an eminent statistician that in the year 2000 Australia, at the present rate of increase, will have a population of about 190 millions. True, Australia is not much smaller than Europe, but does what we know of its geographical conditions render such an increase desirable even if it is probable? Europe, with the most favourable conditions of soil and climate and highly-developed industries, has only a population of about 400 millions, while nearly one-half of Australia, is desert. From neglect or ignorance of known geographical conditions, or from taking no steps to counteract them, the most serious disasters to crops and flocks were of constant occurrence in Australia, though, recently, improvements have been introduced. It is therefore the most short-sighted policy imaginable in a young colony to neglect the survey of its territories; public money cannot be better spent than in the maintenance of an efficient survey service, and a carefully-selected network of meteorological stations. For evidently the first requisite to the development of any country is a complete knowledge of its resources, and the essential groundwork of such knowledge is mainly geographical in its character. One of the best examples of the utility of efficient survey and meteorological services is to be found in British India, the immense development of the agriculture of which is mainly due to the application of the knowledge thus acquired; while the conditions that lead to famines are now fairly well known and might to a certain extent be met, and their lamentable consequences largely avoided. An equally thorough and precise knowledge of the geographical conditions, in their widest sense, of all parts of the Empire would prevent many serious mistakes—mistakes as to the type of people for whom they are adapted, as to the kinds of culture for which they are suited, as to the imposition of tariffs, the fostering of particular industries, and the limits within which outside commercial enterprise is possible. It is information of this character which the Colonial Office might be expected to supply; not the vague and partial statements to be found in official pamphlets for emigrants, but data as precise, detailed, and exhaustive about every section of every one of our colonies, as a mathematician would expect to be furnished with were he asked to work out a mathematical problem. A little more knowledge of geography on the part of public men and journalists would have prevented much of the foolish talk and foolish writing indulged in at the time over the African annexations of France and Germany ; for then they would have known that scarcely anything that was annexed was worth having, so far as we are concerned, either from a colonial, commercial, or strategical point of view. Indeed, a broad consideration of the requirements of the British Empire from any of these standpoints shows, in my estimation, that except at one or two points we may well be content with what we have, and let the rest of Europe scramble for the remainder.

The trading station or factory might be regarded as a third type of Colony ; but it is really an elementary form of the Plantation, and sooner or later develops into that, or at least what may be called a Colony of Administration, of which India is a type.

Commerce has become cosmopolitan ; it has ceased to be the monopoly of any one nation, and it carries its operations into every corner of the globe. Every nation and every merchant feels the intensity of the competition, and we are all convinced at last that, while swiftness and strength are important, they are of little avail without knowledge ; superior knowledge, in the end must win the race. The Germans, we are told, are running us hard in all the markets of the world, and that mainly because their manufacturers and their commercial men are better informed, and know better how to adapt themselves to geographical conditions than we do. The young Germans who come to England and take the City by storm have all had a thorough training in one of the admirable commercial schools on the Continent; similar schools it is to be hoped will soon become common institutions in this country. In the curriculum of these institutions commercial geography occupies a place of the first importance; but it is not the barren thing that, until recently, passed under that name in this country. It embraces a field that touches the practical business of commerce at every point.

In the chapters which follow I shall endeavour to show, in greater detail, how geographical knowledge may be applied with satisfactory practical results to the operations of industry and commerce.

CHAPTER II.

GEOGRAPHY APPLIED TO COMMERCE.*

IT would be of great interest to trace in detail the growth and the spread of commerce, especially in so far as they have been dependent on geographical exploration and geographical conditions. But although to do this is inconsistent with my present design, it will be useful to glance briefly at this aspect of the subject. I have already referred to the fact that the earliest old world civilizations probably grew up on the banks of great rivers, like the Nile, the Euphrates, the Ganges and the Hoangho, and that the earliest commerce, apart from mere local trade, was of an inland character, depending on river communications and on caravans. Such a trade could never reach great dimensions, and it was only when the peoples who developed their civilization on these rivers had the courage to find their way outwards to the sea, that their commerce became of a really international character. From their vantage-ground on the Syrian coast, the Phœnicians, a people who, like ourselves, inhabited a small country, and in their time were the greatest traders in the world, sent out their ships east and west, along the Mediterranean on the one hand, and down the Red Sea to exploit the treasures of the

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* In reading this chapter the Map of the World, showing Commercial Highways, at the beginning of the volume, should be consulted.

Phoenicians [illegible]

[illegible]

East on the other. It was through them, under the enterprising merchant prince, Hiram of Tyre, that Solomon obtained all the eastern luxuries for which his court was famous. It was they, so far as we know, who of all civilized nations were the first to burst beyond the pillars of Hercules, and come out into the broad Atlantic. But though they had stations on the Atlantic coast of Europe, as, for example, at Cadiz on the coast of Spain, and even, it is supposed, made their way to our own island to work the tin of Cornwall, commerce, in its large sense, was in their time and for long after, practically confined to the Mediterranean, the centre of the then civilized world. Their offshoot, the Carthaginians, were also enterprising traders (though they did not develop a great carrying trade like the Phœnicians), and there can be no doubt that Hanno, a native of Carthage, about 500 years before Christ, explored the West coast of Africa, down to about the Bight of Benin. An even greater voyage is stated to have been made by the Phœnicians themselves, who at the instigation of Necho King of Egypt, are said, about 100 years before the voyage of Hanno, to have circumnavigated Africa, starting from the Red Sea, and coming in by the Straits of Gibraltar. But of this we cannot by any means be sure. At any rate, these voyages had little effect on the extension of commerce. The time was not ripe, and the ships of the period were hardly suited for extensive oceanic enterprise. Moreover, the stirring events in the Mediterranean left the nations on its shores little leisure for great exploring expeditions. Carthage had to fight for its existence with Rome, and was crushed into the dust. The Greeks were great traders and great colonisers, and about the date of Hanno's voyage, a Greek, Pytheas, of the colony of Masilia (now Marseilles), made a venturesome voyage at least as far as the north of Scotland, and some believe beyond, though that had little effect on the extension of commerce. The Roman trade was largely a land trade, and Roman roads are found all over Europe. Evidence exists that Roman traders went even as far as Scandinavia.

But none of these ancient trading nations could rival in the dimensions of their transactions the great Republic of Venice, which grew up from its foundation in 452 A.D., among the lagoons at the head of the Adriatic, to be one of the great commercial and political powers of the middle ages. The Venetians were the great carriers and distributors of their time, as we still are of ours. In the 14th century, they had a merchant navy of over 3,000 vessels, 300 of the ships being over 700 tons burthen each. They penetrated into all corners of the Mediterranean and the Black Sea, bringing back as cargoes the riches of Asia and Africa. Their situation at the head of the Adriatic was admirably fitted to act as a distributing centre; the commodities which their ships brought to Venice were sent mainly on pack-mules, to all parts of Europe, over the great Alpine passes that separate Italy from Germany and Austria.

But mark that all this was essentially a Mediterranean trade, or at most extending to the west coast of Europe: and from the fact of its being largely dependent on caravans of horses and mules, and ships of small burden, and on river traffic, could never assume large dimensions; the bulky and heavy trade commodities of commerce of the present day had hardly any place in this mediæval trade.

The further extension of geographical exploration gave the death-blow for centuries to the Mediterranean as a great commercial highway, and to the Venetians as the greatest of the world's traders. The time was now ripe for the commerce of the world to emerge from its essentially local character, and take the first step towards becoming cosmopolitan. Two great geographical events which happened in the end of the 15th century may be regarded as the turning-points, as the causes which diverted the maritime trade of the civilized world from the Mediterranean as its chief field, and transferred it to the Atlantic, and thence over the face of the globe. These events were the discovery of America, in 1492, by Columbus, who, though a Genoese, was in the service of Spain; and the establishment of the Cape route to India in 1498, by the great Portuguese navigator, Vasco da Gama. The death-blow was thus given to the supremacy of Venice. Portugal and Spain rapidly sprang to the front rank as commercial and colonizing powers: for commerce and colonization are intimately associated. For a brief period, Portugal became a great world-power; she had her stations all along the coast of Africa; India was at her feet; she shared America with Spain. But neither she nor Spain knew how to make use of their discoveries and their conquests. Other nations, more energetic and more wise, and with men of the true commercial spirit, came into the field. Little Holland especially, at one time, threatened to rival England as a colonizing and commercial power, but, happily, we won the day, although Holland is still a great trading nation, and her colonies are a valuable possession.

I cannot enter here upon the story of the rise of England to the leading position in the commerce and the politics of the world, nor recount the growth of our great colonial empire, until now it is three times the size of Europe. England tried in vain to checkmate Portugal and Spain by discovering a route to India, round by the north of Europe or of America, what are known as the N.E. and N.W. passages. The geographical conditions there are not favourable to commercial enterprise. The growth of British commerce, it will be found, is closely associated with the progress of geographical discovery. Without the explorer as a pioneer, commerce could make little headway ; and even at the present day, the first steps towards the creation of a commercial enterprise in little known regions is often designated an Exploration Company. The transference of the great commercial highway from the Mediterranean to the Atlantic was a fortunate thing for this country. There can be little doubt that the geographical position of the British Isles and the configuration of their coasts have at least had something to do with our commercial supremacy.

Our position has compelled us to be a nation of navigators; it has saved us, to a great extent, from being embroiled in continental struggles, leaving us leisure for more profitable enterprises, and for acting as carriers to the whole world. The Thames is a great funnel into which pours the commerce of the Continent, while the other great ports on the east coast, Hull, Newcastle, Leith, catch their share. We are the advance guard of Europe, looking out on the Atlantic, inviting the ships that traverse that great highway to enter our spacious harbours. No doubt the calibre of the race that inhabits this island has had much to do with our commercial success; but it should also be remembered that some of the most marked qualities of that race have, to an appreciable extent, been the outcome of the geographical conditions of the land we live in. One thing may be noted before passing from this aspect of the subject. The Mediterranean has once more become an important trade route, by the turning of Africa into an island. The Cape route has no longer the importance it once had, since the making of the Suez Canal, which, with the invention of steam, has enabled us to take only a week or two to a journey which, less than a generation ago, took months. This vast diminution of distances over the face of the earth, by the invention of steam and the electric telegraph, combined with the opening up of new routes, and the making of short cuts where, before, long roundabouts had to be taken, has been one of the most potent factors in the development of commerce;

and in the carrying out of these enterprises, geography, in one aspect or another, has played an important part.

The study of the vicissitudes of commerce in the past, and the changes which have taken place in the wake of geographical exploration, are not matters of merely historical or scientific interest. We have seen how commercial supremacy has passed from one nation to another, and how closely associated this supremacy has been with exploring enterprise, which simply means the acquisition of a practical knowledge of the world's geography. Geographical knowledge is not everything; it will not save a nation which does not know how to make the most of it, a nation which lacks the energy to follow up knowledge with enterprise; the sad example of Portugal has already been referred to. But without such knowledge commercial enterprise must work in the dark. By a study of the past we might be able to look into the future, and take such precautions beforehand, that we shall not share the fate of Spain and Portugal. At present our interests are world-wide. Our explorers, missionaries, traders and ships are everywhere; it is for us to take advantage of the information they bring us, to be first in the field of all new markets and sources of supply, and to keep our place there.

It is not easy for us to realise the immense dimensions of the world's commerce. When we are told that the annual value of the commerce of these islands alone is 1,000 millions sterling, with over 20,000 ships of 11 million tons, manned by 230,000 sailors to carry it on, we can form but a faint idea of what all that implies. We send our coal and our iron, our cottons and our woollens, to every corner of the known world; we bring back skins and blubber from the Arctic; rubber and ivory from Central Africa; corn and cotton from America, Russia and India; wool from Australia; tea from China, India and Ceylon; copra from the Pacific; gold from every continent; and a host of commodities from every country of Europe. Commerce, we have seen, has been in its progress in the past intimately associated with geographical enterprise; as it has dealings with every country and every ocean at the present, it must still be intimately associated with those results of exploring enterprises which we call geography.

It must necessarily be so if we only consider what commerce is, and what geography is. Commerce, in its larger sense, is essentially the transference or conveyance of commodities from one part of the world to another; from the place where they are found or manufactured, to the place where they are wanted, *i.e.*, to their market. This implies the finding of your commodities to begin with: a knowledge of the conditions in which they are found; of the circumstances under which they are to be obtained; of the facilities for and hindrances to taking them from where they are to where they are wanted; and of the character of that market and the conditions under which the commodities are to be disposed of there. Commerce, to be progressive, must be constantly on the outlook for new sources of supply, for new fields in which to dispose of her commodities.

Now much of all this, I think it is evident, is clearly connected with the kind of knowledge which geography in its broad sense ought to be able to furnish, and also with the kind of enterprise which we call exploration. It may be thought that geography cannot be of much help to the merchant who deals with highly civilized and thoroughly known countries, like Germany, France, Holland and Belgium. But geographers maintain that the political, social, and economical conditions which prevail in those countries, the characteristics of the people, the conditions under which commerce must be conducted, are largely the outcome of the influence of geographical conditions on man, and of man's action in modifying them. What are railways, canals, and telegraphs but successful attempts to overcome geographical disadvantages, and to lessen distances, and these surely are geographical factors. But whether we call it geography or not, our Consuls abroad are continually telling us that ignorance of a country, ignorance of its people and their peculiar ways, ignorance of their language, ignorance of the wants special to the country, is constantly placing our traders at a disadvantage, compared with the well-informed traders of an enterprising country like Germany, in the commercial schools of which geography holds so important a place. Under whatever heading it may come, it is surely in the interests of British commerce, then, that such ignorance on the part of our mercantile men should not exist. But probably it is in new or not well-known countries that geography can be of the greatest service to the merchant. Let us then see what geography is.

For a short definition we cannot, I think, get anything better than the old statement found in all text-books, that geography is a description of the earth. It all depends on what we mean by "description." With rare exceptions, the old text-books contained little more than lists of names: names of capes, names of bays, names of mountains and of rivers, of countries and of towns, and this type of text-book is by no means obsolete. No attempt is made in such text-books to show any relation existing between the various features, and, worst of all, nothing is done to connect the most important factor on the earth's surface—man himself—with those geographical conditions which influence all his actions and movements, which have often determined the course of history, the rise and fall of nations, the growth of industry, and the development of commerce. It is no wonder that the geography lesson, which might be full of interest, used to be, and it is to be feared in many schools still is, the horror of the pupil; fortunately this state of things is gradually passing away. It is no doubt of importance to know the names and situations of as many places as possible, but if we know nothing more about them, and about their surroundings and their people, and their industries, the knowledge cannot be of much service to us. I think much more can be made, and is being made, of geography than that.

We may approach geography from two directions. We can begin at the surface and go downwards or inwards, and try to discover the causes of the great factors which we find on the face of the earth—the oceans and the continents and the islands, the mountains and the plains, the lakes and the rivers, and all those other features which give such variety and beauty to the home of mankind. Here we are seeking after causes. In order to study this aspect of the subject effectually, it is advisable to have some acquaintance with the sciences that underlie what is called physical geography, especially geology and physics. Parenthetically it may be said that the student of commercial geography will be all the better qualified if he knows something not only of these sciences, but of meteorology, botany, and even chemistry. But it is seldom that the young man intended for a commercial career has the time that is necessary to master even the elements of these sciences. Much, however, of what is required to form an intelligent appreciation of the great facts with which geography deals ought to be included in the subject known as Physiography, a course of which should precede the serious study of geography in its widest sense. After such a course, we may take the features which form the immediate subject of geography as we find them,—take into account the action upon them of all influences to which they are subject—latitude and longitude, altitude above sea-level, of heat and cold, of rain and drought, of distance from or nearness to the sea, of the varied covering of the surface, vegetable or animal, sand and rock, and of all those other factors which give a region character. We can study their relations to each other, and, above all, their influences on the kindly race of men who are planted in their midst, and whose lives and activities are to a great extent determined by them. On the surface of the earth we have land, we have water, and we have the atmosphere, and it is the result of the interaction of these three prime factors which to a great extent makes the face of the earth what it is, and which has a marked influence on the welfare of human communities.

It would be out of place here to discuss the best methods of geographical training, but the conviction is spreading that certain practical exercises in the field, and the solution of problems in which geographical factors are of critical moment, are absolutely necessary if the subject is to be dealt with on scientific lines. From our present standpoint there is ample scope for the introduction of problems in commercial geography.

Geography, like commerce, deals with distribution. It might, as has been pointed out in the previous chapter, be defined as that department of knowledge which treats of the topographical distribution of the great features of the earth's surface and all that it sustains, of their relations to each other, and, above all, of their relations to the greatest factor on that surface—man himself.

I have said that the three most potent factors on the earth's surface are, land, water, atmosphere, and that it is the relations and interactions of these that give rise to the leading phenomena with which geography deals. But there are two other factors—or, rather, forces—which cannot be neglected, as without these, or at least one of them, all would be stagnation. There is the rotation of the earth, with all that it involves; and above all, there is the great source of all energy—we may say all terrestrial life—the sun himself. It is his action on the surface of the earth, as it revolves around him year after year, as he sways between the tropic of Cancer and the tropic of Capricorn, his action on the three great factors of air, earth and water, that keeps everything in a state of constant activity and change, that produces many of those conditions which so closely affect the interests of commerce. Let us, however, deal a little more closely with the surface of the earth itself.

We have first the two notable divisions of land and water, in all their varied forms. The relations of the land to the water are often of the greatest commercial import. Take, for example, the outlines of the great masses of land. Compare the monotonous contour of the African continent with the broken outlines of the other continents. See how Europe is penetrated everywhere by great arms of the sea, by gulfs and bays and fjords and estuaries, affording magnificent harbourage, and giving access to the heart of the continent. Asia too, though not so broken in proportion to its size, is also fortunate in this respect, though unfortunately some of its finest water approaches to the interior are rendered almost useless by their geographical position: the great estuaries of the Yenissei, the Obi, and the Lena face the eternal frosts of the North Pole. America has its wide opening leading up the St. Lawrence, which by a little canalisation gives access to its great lakes. All down the east coast are spacious gulfs and commodious harbours; there is the great sweep of the Gulf of Mexico, the openings that lead up the Orinoco, the Amazon, the La Plata. Even Australia has its Spencer Gulf, its Port Phillip, its Sydney Harbour, its Gulf of Carpentaria, though in the matter of openings into the land it is too like Africa, and had it been situated in the same latitude, it might have been as far behind to-day as the Dark Continent.

For latitude is one of the most important geographical factors, and one having the closest bearings on the interests of commerce. Africa, in this respect, is the worst off of all the continents. If we look at the map we shall see that two-thirds of its surface lies within the torrid zone. Now although much has been done in 20 years to open up routes, by land and water, two-thirds is even yet difficult of access to any enterprises conducted by Europeans, but what is more of an obstacle, this enormous surface is like a great furnace spreading its torrid influence north and south. Europe and Asia are within the temperate zone, except a portion of Arabia, India, and the Indo-Chinese Peninsula, and those northern regions which stretch into the inhospitable circle of the frozen ocean. But that is only a small proportion of the great Euro-Asiatic land-mass. So, too, with North America; the great mass of the mainland is within the temperate zone, as is a large section of South America, and more than one-half of Australia. Had it not been for its latitude, Africa would have been overrun by European colonization and European commerce long ago. If we look at South America we can see the difference which latitude makes to industrial development. North of the tropic of Capricon lies most of Brazil, Peru, Bolivia, Venezuela, Columbia, Ecuador, Central America, where revolutions are chronic, where northern Europeans can only labour with difficulty, where the climate is inimical to exertion, and where everything is stagnant. South of that tropic we have the Argentine and Chile, two most enterprising nations, who have done well in the past, and who have a great future before them.

Much more could be said on the influence of latitude on industrial enterprise; but at present I can only give hints which the reader may follow out for himself. Let me just refer again to the great rivers of Siberia. They are magnificent highways into the heart of Asia. Attempts have been made to establish a trade route from Europe along the north coast of Russia and Siberia, in order to develop the mining and other resources of that interesting land. Even in good years these inhospitable seas are only open for six weeks. So far the attempts must be pronounced a failure; latitude is against their success; and if Siberia is to be developed, I suspect its great trade route must be the great Trans-

Siberian Railway, to which its rivers act as feeders.

But there are certain circumstances which modify the natural effect of latitude. There is the influence of the ocean itself, which acts as a powerful moderator. Contrast the mild winter of the British Isles and Western Europe with the rigorous winter of the interior of the Continent, even in more southerly latitudes. This factor is itself subject to variations, dependent to a large extent on the direction and temperature of its surface currents, and these again largely owe their origin to the prevailing winds. What is popularly known as the Gulf Stream is a well-known example ; there can be little doubt that the warm tropical water which spreads northward over the Central and Eastern Atlantic has some effect in producing the mild winter climate of our islands, a marked contrast to the rigorous winter climate of New York, more than 10 degrees (700 miles) south of London, due largely, no doubt, to the cold current that comes south from Labrador. On the opposite coast of America from New York, they have at Vancouver Island and British Columbia, in our own latitude, the same open climate that we have, due largely to a warm current similar to the Gulf Stream—the Japan current or Kuro Siwo. It is partly owing to this, and partly, no doubt, to other causes, that what is known as the mean annual isotherm of 40° Fahrenheit, sweeps north-west from the mouth of the St. Lawrence to Alaska. That is to say, the western parts of the Dominion of Canada which are in the same latitude as inhospitable Labrador, have the same average temperature as the country at the mouth of the St. Lawrence, a most important fact for industry and commerce, seeing that it renders possible stock-rearing and agriculture on a great scale in one of the most important sections of the British Empire, and keeps the harbours open nearly all the year round.

There is still another point that must be taken into consideration in the interests of commerce, as tending to moderate climate, and that is, altitude or height above sea-level. The configuration of the land surface of the globe is one of the fundamental elements with which geography deals. We have mountains assuming many varieties of aspect—long ranges, such as we find up and down the coast of America, along the northern border of India, and crossing Central Asia; great masses like the Alps; isolated groups and peaks like Kilimanjaro, Kenya, and Ruwenzori; and we have also those worn-down mountains which are called table lands. Mere altitude has such a modifying effect, that even in South Europe, in Switzerland, North Italy, France and Spain, human life and human activity cannot be carried on above a certain moderate limit; whereas at Quito, just on the Equator, you may have an elevation perfectly tolerable to Europeans, for it is 9,520 feet above the sea. As a rule, for every 300 feet you rise above sea-level the air grows cooler by one degree Fahrenheit; so at 3,000 feet above sea-level, you get it 10° cooler, and 5,000 feet, nearly 20° cooler than it is at sea-level. This is a most important fact for the development, under white men, of tropical countries like Central Africa.

Here we have entered upon the subject of climate —a critical one with reference to the transactions of commerce. Latitude, altitude, the relation of the land to the ocean, are all elements which help to form climate. But, above all, the prevailing direction from which the wind comes is of prime importance, for that again governs to a great extent the rainfall; and the amount of rain that falls in a country, as everyone knows, largely determines its fertility, and its suitability for a great variety of industrial operations. Take the great Sahara, or the Kalahari, or the Gobi Desert, or the great desert tract in the Western United States. They are barren, simply because they get little or no rain; and they get no rain either because the wind does not come from the right direction, *i.e.*, over the broad ocean, or if it does, because all the moisture it has sucked up from the ocean has been tapped by the coast mountains. It is possible to have too much rain; our average is about 25 inches a year. In the dripping forest of Central Africa it is about 75 inches; in some parts of the Eastern Himalayas it is as high as 800 inches. Nothing can stand before that; everything is swept off the ground: even in some parts of Africa railway construction is a difficult matter, on account of the enormous deluges that at times pour down.

So far as climate bears on the health of man mere heat is not the injurious item; though that, when constant to a high degree all the year over, is inimical to that continuous active exertion on which industrial success depends. Imagine for one moment a rare hot week in one of our rare summers continued all the year over; it would change the whole of our national life; but when this acts upon ages of rotting vegetation and mosquito-infested swampy ground, as is the case over much of the tropics, the results are deadly. Hence the difficulty which Europeans have to contend with in developing the commercial resources of regions like Eastern and Western Central Africa, New Guinea and tropical South America. Still, as has already been pointed out, experience tends to lead us to modify these views.

This question of climate, and especially of rainfall, is of vast importance with reference to the British Empire beyond the seas. Thus, in India, the density of population in many places is in exact proportion to the rainfall. In Australia there are belts extending from the coast inland, where the rainfall decreases in regular gradation from over 75 inches a year to almost nil. Now the agricultural and pastoral capacity of the country corresponds precisely to its rainfall. Thus for every inch over absolute drought you can graze one sheep per square mile, though the ratio goes on increasing. You can have 22 sheep per square mile for every inch of rain over 9 inches. In New South Wales, 20 inches per annum gives feeding ground for 640 sheep per square mile, *i.e.*, one per acre, and even that cannot be considered very high, and could only pay in a country where land is plentiful and cheap. Or take wheat in South Australia, one of the great wheat-exporting countries. The yield of wheat is measured according to the number of bushels per acre. In this country, for example, we may get 26 to 30 or more bushels per acre. In South Australia, with 18½ inches of rain a year, the wheat harvest yields 12½ bushels per acre; 15 inches of rain yields 10 bushels; 13½ inches yields only 6½ bushels. As Mr. J. T. Wills points out in a paper on the subject,* an extra inch of rain in the season, on the total area of South Australian wheat lands—some two million acres—would give it an additional fee-simple value of £10,000,000, if wheat at 4s. a bushel or equivalent crops were grown. In Melbourne the people of Victoria have been attempting to manufacture their own wool into cloth, and so avoid the necessity of importing so largely from England. But the climate there is so dry that, to begin with, they cannot succeed in making yarn that can at all compare with that made in Yorkshire. A certain amount of moisture, it seems, is required to turn out satisfactory yarn, which is found in the atmosphere at Bradford and other manufacturing centres, but which is not found in Australia. So I am told is the case also with the manufacture of cotton yarn, which is the great staple in Lancashire; though the fact of that being the great centre of cotton manufacture in this country is, no doubt, due to a large extent to the geographical position of Liverpool, which makes it the great port for the import of raw cotton from the States.

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* "Scottish Geographical Magazine," vol. iii, p. 161.

I give these facts to show how very important a factor rainfall is in judging of the commercial value of a country ; but for its scanty rainfall the Sahara might be as rich a country as the Central United States. The lack of rainfall in a large portion of South Africa is one of its great drawbacks.

Climate as a whole, made up of such a variety of elements, is one of the great guiding factors in the development of the commercial resources of the globe. If a climate is unfit to live and work in, of what good will all the resources of a country be? Fortunately we are learning to counteract such evil influences, partly by knowing better how to live, partly by having sanatoria at a considerable altitude to go to, and partly by establishing rapid means of communication which will take us without delay out of the malarious atmosphere.

Nothing is more influenced by climate than the vegetable covering of the face of the earth, and how important that is from the commercial point of view may be seen from the fact that one-third our imports, *i.e.*, over 200 million sterling, are of vegetable origin, and one-third of our exports are manufactured goods of vegetable origin ; I need only mention the import of raw cotton and the export of cotton goods. The distribution of forests over the globe means the possibility of timber supply ; and there are other natural vegetable products, like India rubber, ebony fine woods like mahogany, oil-nuts and so on, which are of importance to commerce. But of much greater importance are the cultivated plants. One of these, wheat, I have just referred to; and the laws which govern its distribution, the geographical conditions under which, in its many varieties, it may be grown with advantage, are well known. We know its northern and its southern limit in various longitudes; how in Europe it may be grown in 60° north latitude; as we go eastwards through Asia to the Pacific the limit of growth gradually comes south to about 40°. In America it will not thrive much beyond 44° in the east, but in the North-West Territories of Canada it may be grown at about 60° north. Temperature, rainfall, and soil are the important factors. So with other cereals: barley, oats, maize, rice; so with tea, coffee, tobacco, cotton, the vine, indigo, the olive, and other cultures of commercial value. These articles are all regulated in their distribution by the various factors to which I have referred; and with proper geographical data, we ought to be able to say with respect to new lands, for which of these crops, if any, they are suited.

Wild animals are of less importance than wild plants to commerce, though indirectly their abundance and character may seriously affect the commercial value of a country. Take ivory; that is still an important export of Central Africa; yet probably it does not represent more than a million sterling annually, less than the export of wool from the Cape alone. As a rule, the mere natural animal and vegetable products of a country can never be of the first commercial value; far more important is it to know for what artificial cultures and what domestic animals any country is adapted.

It is different with minerals. I need not insist on the value of gold, nor on the fact that it is found in all climates, and under varied geographical conditions. The precise nature of these geographical conditions greatly affects the profit which may accrue from working it. There is plenty of gold on the Gold Coast; but the climate is unhealthy. To collect the gold which is running in the low-lying rivers of Mashonaland that flow north to the Zambezi, also involves risks. Happily, plenty of reefs exist in South Africa, Australia and Western America, that can be worked without injury to health, but these reefs may be so out-of-the-way, may be so difficult to reach with the necessary stamping machinery, that to work them would be ruinous. Hence the vast importance of that special branch of Commercial Geography which deals with communications and trade routes.

Of much greater importance for a country than all the gold of all the rivers and reefs in the world is its coal, its iron, its copper, its tin. Even the export of wool alone from Australia far exceeds in value that of its ever-diminishing gold output. The geographical distribution of coal and iron over the globe is of vast commercial importance; and precise knowledge of the conditions under which they are found is invaluable. We have coal in England, in Belgium, in France, in Germany; we have great fields in the United States, and a good supply in Canada; New South Wales is well off; but China is thought to beat them all, and yet the Chinese supply is scarcely tapped.

And here let us introduce the prime factor of all in studying the surface of the earth—man himself. Had a different type of men from the Chinese, men like ourselves, possessed that vast territory, how different would the results have been! The land would have been honeycombed with coal-pits; though great reefs of the coal are said to crop out on the surface in some places. It is the influence of geographical conditions on man, and his action upon them, that lie at the very foundation of commerce, and of every other manifestation of human activity. It is, therefore, of prime importance, from an industrial point of view, to know thoroughly the character of the people who inhabit the various regions of the earth. Thus, in Central Africa, white people, for the present at least, cannot do the hard work; if, then, we cannot get the native African to labour, what comes of the commerce? Even in countries like Spain and China, and India, traders often make the most fatal blunders through ignorance of the people and their ways. Foreigners get the better of us, because they take some trouble to be able to address the people in their own language. Ignorance or inattention to the peculiar religions or superstitions, or customs of a people, especially in uncivilized or semi-civilized countries, may ruin commercial enterprise.

Such are some of the geographical data that have a direct and important bearing on commercial enterprise. We have the various physical conditions to which I have referred; and we have man in the midst of all. These are the two great factors of every form of human activity. In seeking for our commercial commodities, we are bound to take them into account; as we must do in seeking after our market. The better we know them the more successful we are likely to be; and, moreover, the thorough study of them is a matter of great intellectual interest.

There is one other matter to which I have only referred incidentally, but which is one that cannot be neglected, and it is essentially geographical, being intimately connected with topography; I mean the subject of Communications. We get our commodities; we overcome all local difficulties, and it remains for us to get them taken to their destination. What sort of a country have we to pass through? What are the means of conveyance? Must the articles be carried on men's heads, or on camels as in many parts of Africa and Asia, or on llamas as in the Andes, or on mules or horses, drays or canal boats; on railways or on ships; or on all of them? One of the great aims of modern commerce is the shortening of distances by laying down railways, cutting through isthmuses, increasing the speed of our steamers. The importance of railways I need not point out.

The recent extension of railways in Central Asia, in Siberia, in Africa, has vastly increased the commercial value of the regions traversed, and has almost suddenly transformed what was almost unexplored and unknown territories, not only into fields of open commercial enterprise, but into playgrounds for tourists; it has brought the regions within the sphere of cosmopolitan development.

In a communication to the *Times* some years ago, by a writer who had been travelling in Persia, the importance of railways in modifying and improving geographical conditions is forcibly illustrated. After describing the mode of travelling in Persia, and the enormous time it takes to get over the ground, he says, that after riding through Persia, the visitor carries away two impressions—first, that the country is a land of mountains; and, second, that the population falls far short of what, under better government and more scientific administration of the water supply and cultivation of the soil, it might be. The orography of the country will explain a good deal that is peculiar in its history, and is largely accountable for its backward condition at present. Old customs and prejudices are harder to break down in a land so split up and sundered; civilization and commerce more difficult to introduce. What a revolution railways would effect in that country, the stranger does not require to be a month in Persia to find out. To take an instance from South Africa—until comparatively recently, the railway went only from the Cape up to Kimberley, some 500 miles. Quartz could be taken to the crushing mills, all the way, for a very moderate sum per ton; before the cargo reached its destination, not many miles further on, it cost ten times the same amount per ton to be carried on ox waggons. Happily the railway has now been extended far beyond Kimberley, to Rhodesia, and across the Zambezi into Central Africa. The construction of the railway through the heart of Canada, from the Atlantic to the Pacific, has enormously increased the commercial value of the Dominion. The construction of railways has turned India into one of the great wheat-exporting countries of the world. Great mistakes are often made in the making of railways, through neglect of the geographical conditions; one made years ago in the interior of Senegal, by the French, to tap the Niger trade, cost a large sum annually to keep it from being covered up with sand; but better methods have been introduced, and a great network of railways is being constructed all over French West Africa, with a marked effect on its prosperity and administration.

A recent German writer on Geography has attempted to define it as the Science of Distances; and certainly, so far as commerce is concerned, the items of distance and of relative position are of the first importance.

The great object of all recent opening-up of new routes has been to overcome the commercial disadvantages of geographical position, to encircle the globe with continuous lines of rapid communication. The North American Continent is traversed from the Atlantic to the Pacific with several lines of trans-continental railways, and South America is likely soon to have at least one. We can go all the way from London across Europe and Asia by rail to the Pacific, bringing China and Japan within less than three weeks of Western Europe. Another line which would be of great advantage to British commerce has long been talked of; it would go down the valley of the Euphrates to the head of the Persian Gulf, and so greatly shorten the distance to India; and in time, no doubt, we may be able to go all the way to India by rail. Thus we are clearing all sorts of geographical obstructions out of the way. Unfortunately, the Panama Canal was for long at a standstill, but now that the United States has taken it in hand, we shall soon have a much shortened route between the Atlantic and Pacific. The roundabout route into the Baltic between Denmark and Sweden has been obviated by the canal now open between the estuary of the Elbe and Kiel. There was at one time a serious intention of saving the long *détour* by the Straits of Gibraltar by the cutting of a canal right across France from the Bay of Biscay to the Mediterranean. Another canal has pierced the Isthmus of Corinth, and we know that Manchester in the same way has been turned into a seaport.

This subject of distances and communications, then, is of vast importance from a commercial point of view, and the merchant who has worldwide transactions is bound to master the advantages and disadvantages of the various great trade routes.

When once we get our commodities to the coast, then comes the question of the nearest convenient port, and at the other end the most suitable point at which to land them. Milford Haven is a magnificent harbour, but it is nowhere compared with Liverpool for trade, simply because Liverpool has more convenience for quick despatch of business. But several other factors come into play in considering the various conveniences and hindrances for the transfer of commercial commodities round the globe ; factors like the risks of navigation, various port charges, and especially customs duties or tariffs, which are so enormous in some countries as to be almost prohibitive of commercial intercourse.

Another item to be taken into account is the question of currencies, and the matter of exchanges, both of which have their geographical aspect. Even the peculiar methods of keeping accounts, or book-keeping of the country with which you deal, cannot be neglected, and in the commercial schools of Marseilles that forms an essential part of commercial geography, which, in brief, may be said to include everything likely to act as a hindrance or an assistance to free commercial intercourse between the various parts of the world.

I need only briefly refer to the post and the telegraph, both great diminishers of distance, and therefore of commercial importance. My object has been to show in how many ways geographical knowledge may be applied in the interests of commerce ; and that the only sure way to master this application, the only solid basis to commercial geography, in short, is a thorough knowledge of the great principles and facts of geography itself. I shall endeavour to illustrate this in my next chapter by some notes on the Commercial Geography of Africa.

CHAPTER III.

THE GEOGRAPHY OF AFRICA IN ITS BEARINGS ON THE DEVELOPMENT OF THE CONTINENT.

IN the previous chapter I stated that had the Geography of Africa been different from what it is, that Continent would have been taken seriously in hand by the leading nations of Europe long ago. For mark that Africa is part of the old world. As far back as we may go it seems to have been known to the peoples who have had the making of the world's history. One of the oldest, if not the oldest, civilizations of which we know anything grew up on its soil; the ancient monuments of Egypt attest the greatness of the civilization to which that country attained ages before those of Greece and Rome were born, and while Europe was still the home of barbarians. At a much later period civilization of a different stamp grew up along the Mediterranean shores of the continent. There was Carthage, for example, to whose enterprise reference has already been made. At a much later period the conquering Moslems founded what are known as the Barbary States, one of which, Morocco, exists to this day in a state of semi-barbarous independence, while another, Tripoli, is attached to the great Moslem Power, Turkey. Abyssinia is another semi-civilized state of native growth, which has been in existence since about the beginning of the Christian era. We have already alluded to the enterprise of the Portuguese, and to their great navigator Vasco da Gama, who was the first to find his way to India by the Cape. Beginning about 1436 the enterprising adventurers of Portugal in about 60 years, in their tiny ships, not much bigger than cock-boats, had practically gone round the whole west, south, and east coasts of Africa, and by the early part of the 16th century had virtually annexed the whole stretch from Morocco to near Cape Guardafui. They planted forts and stations on the coast at various points. They captured and occupied on the east coast many considerable and wealthy towns, where they found Arab and Indian merchants had been settled for generations, showing that at that early period a large trade had been developed between East Africa and Asia. These Arab and Indian traders we find there at this day, many of them British subjects. The Portuguese, it must be admitted, did make attempts, in the early years of their occupation, to penetrate into the interior, and found stations and towns there. In San Salvador, the capital of the old Kingdom of Congo, they did succeed in raising a considerable city, with cathedral and churches, established some sort of trade, and converted many of the people to Christianity. On the other side, the old chroniclers tell us of the wonderful Kingdom of Monomotapa, whose domain was said to have occupied a great area south of the Zambezi, including that Matabeleland, which some twenty years ago was added to our vast empire.

The most wonderful accounts are given of the riches of the King of Monomotapa, of his gorgeous palace, with its hundreds of richly-furnished rooms. But three-fourths of all this must be regarded as myth. The Portuguese claim to have discovered many of the lakes and rivers which are found in the heart of Africa, but if they really did so, their knowledge was so lost, and the geography so inaccurate, that it has had to be all done over again, and that largely by British explorers. The rich gold mines of the region to the south of the lower Zambezi were certainly known to the Portuguese, and were worked to some extent by the natives to satisfy their demands. But so far as the resources of the continent are concerned, the Portuguese did practically nothing to develop them. From their stations on the west and the east coasts, especially the latter, Sofala, Mozambique, Kilwa, Zanzibar, Mombasa, and other places, they did a trade, mainly in slaves and ivory, but left the great interior untouched. They have had to give way to those who are likely to make a better use of whatever resources Nature has conferred on Africa. Spaniards, French, Dutch, English, followed the Portuguese; but, like them, contented themselves with stations on the coast—factories they were called, to which the natives brought down whatever natural produce they could collect. Till within a few years ago, except at the Cape, which fortunately fell to the lot of England, no serious attempt was made at an effectual occupation of the interior, which remained the happy hunting ground of the Arab slaver.

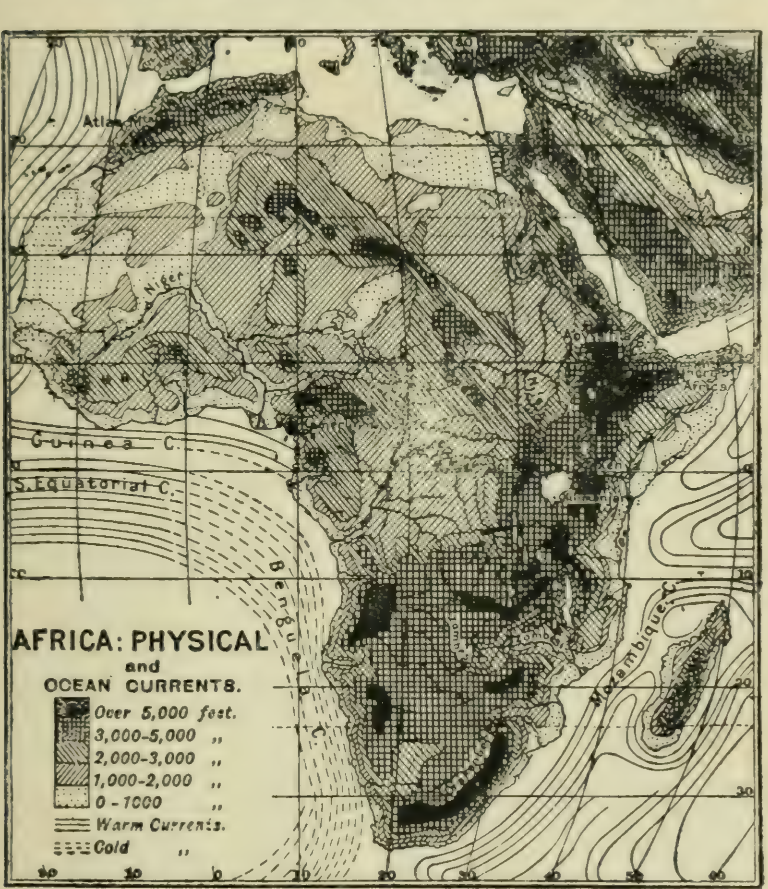
Meantime, the Great Powers of Europe were busy elsewhere. Four hundred years ago a new world was discovered. In the comparatively short period that has elapsed since then, the American Continent has been entirely parcelled out among the peoples of Europe, and on its soil has grown up one of the greatest states of modern times. That other great new world, Australia, which was only taken in hand a century ago, has become part and parcel of the British Empire, has a population of more than four millions English-speaking white men, and does a trade of considerably over 100 millions sterling annually. And yet Africa, which has been known to Europe as long as Europe has been known to itself, on a corner of which one of the first civilizations of the world flourished 5000 years ago, was throughout most of its length and breadth neglected and despised till about a quarter of a century ago. Considering its nearness to Europe, had it been as easy to occupy and develop commercially as America and Australia, do you think it would not have been taken in hand long ago? Twenty-five years ago the entire trade of Africa, imports and exports, did not exceed 85 to 90 millions sterling annually, some 20 millions less than Australia, which is just one-fourth the size of Africa, and only began its career a century ago. Let us see how far the geography of the Dark Continent has had to do with its tardy development.

Let us look at the map and see how Africa lies with respect to the rest of the world. She has the broad Atlantic stretching away out from her west coast. Her south coast looks down upon the eternal ice that envelops the Antarctic region, but, fortunately, a long way off. The warm water of the Indian Ocean bathes her shores on the south-east, while on the north-east and the north she has the great mass of the Euro-Asiatic Continent, with only the narrow strip of the Red Sea, and the somewhat wider Mediterranean between. Now, if the winds and ocean-currents are favourable, and the contours of the land analogous to those of some other continents, Africa should, on the whole, be well off. So far as the centre of the continent goes, it fares not badly. The winds that blow across the Atlantic on the one side, and from the Indian Ocean on the other, bring with them a reasonable amount of moisture. There is a comparatively cold ocean current, known as the Benguela current, that runs from below the Cape up the west coast to beyond the mouth of the Congo, which, no doubt, tends to diminish the rain supply from this quarter. But all round the Gulf of Guinea there is a warm current and a general inflow of moisture-laden winds towards the land. On the south-east coast, again, we have a warm ocean current, the Mozambique current, running south, and a general tendency of the winds to blow towards the coast. Further north, towards the Horn of Africa, as it is called, we have in summer the moisture-laden monsoons carrying a rich tribute of rain towards the land, with little or nothing to hinder its deposition.

When, however, we go north of that, north, say, of about 22° north latitude, we find the geographical position not by any means favourable to commerce and industry. There we are in the region of the Sahara, covering some three million square miles, between the Nile Valley on the east, the Atlantic on the west, the Mediterranean Sea on the north, and the Central Sudan on the south. Although the Atlantic bathes all the west coast of this region, unfortunately the winds, instead of blowing towards it, blow away from it. What are known as the north-east trade winds (owing to their importance to navigation), just skirt the coast, and do it little good. True, the prevailing winds of the year on the north and north-east come across the Mediterranean and Red Sea; but they have just passed over the great land masses of Europe and Asia, and parted with most of their moisture to these favoured continents, while the little they can pick up from the narrow seas is deposited on the coast, and almost none reaches the Sahara.

Thus, then, so far as its surroundings go, the great mass of the centre and south of the continent is not unfavourably situated as regards currents and winds, while some three millions of square miles in the north, more than one-fourth of the whole of Africa, is as badly situated as a land can be outside of the polar circle. It is not possible here to go into the reasons why winds and ocean currents exert the influences I have referred to; that can be found out by consulting a good physical geography. I can only deal with results.

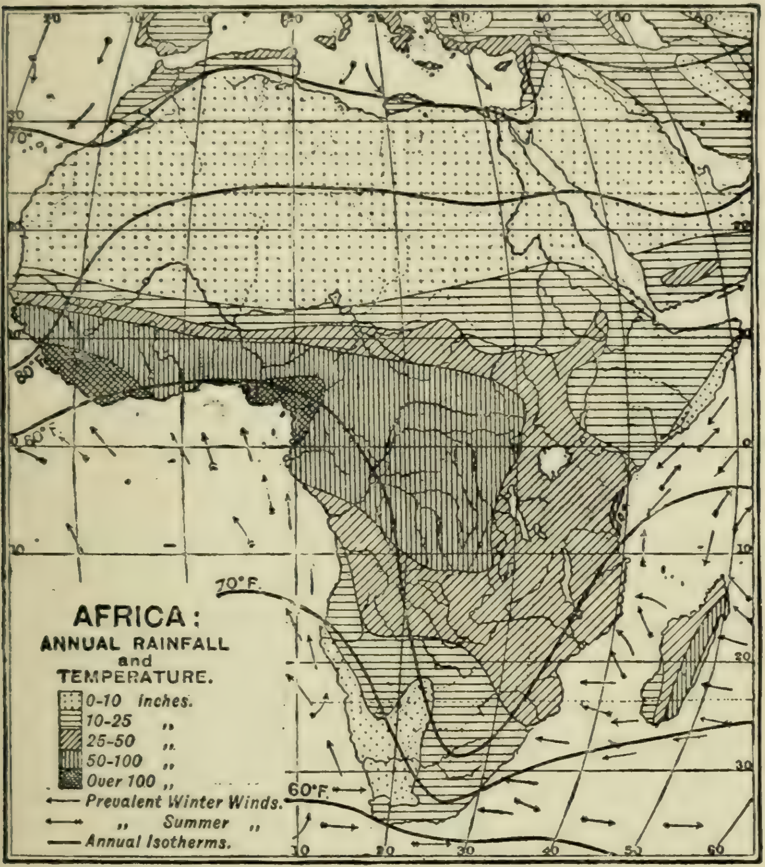
Now let us consider the contours or configuration of the land itself, and see how far these are favourable to commercial enterprise ; to what extent they are likely to modify, or profit by the surrounding conditions to which I have referred. One of the maps is contoured to show the leading elevations of the continent above the sea. Land below 1,000 feet above the sea-level is lightly tinted ; the next lightest tint indicates land between 1,000 and 2,000 feet; the next between 2,000 and 3,000 feet ; the



darker tint land from 3,000 to 5,000 feet; and the darkest tint land that rises above 5,000 feet. Now it will be seen that the greater part of the surface of Africa is what is called a plateau or table-land of from 3,000 to 5,000 feet above sea-level. Over nearly all the coast region we find a low strip of less than 1,000 feet, rising rapidly in terraces to the general height of from 3,000 to 5,000 feet, which prevails over the greater part of the Continent. In Northern Africa, over most of the Sahara, the average limit is lowered to 2,000 feet, and on the west and some patches in the north to less than 1,000 feet, and even in a few spots below sea-level. On the east coast the low strip is often quite 100 miles wide, while of course the valleys of the great rivers are all on a low level. But the configuration of the surface of Africa is on the whole that of a plateau of from 3,000 to 5,000, in some patches 7,000 feet above sea-level, dropping down on the coast by irregular terraces. On the map will be seen scattered over the surface some darker patches. These patches indicate the only parts of Africa that rise over 5,000 feet. It will be seen how few and scattered and isolated they are, compared with the whole extent of the continent, and how different Africa is in this respect from any other continent, except Australia, with which it has a good deal in common, making allowance for difference of latitude. The only mountain range, strictly speaking, is the Atlas, and that is a short one, blocking the path of any moisture-laden winds from the north and north-west; here the highest height is about 12,000 feet. But the greatest mountain-mass on the continent is in Abyssinia, the Switzerland of Africa, admirably situated in the pathway of the south monsoons, and rich in moisture. One peak, rising to over 15,000 feet, is always snow-capped. The mass descends in terraces abruptly to sea-level, and each range of heights is adapted to special cultures and special industries.

The small mass of the Kamerun Mountains rises to 13,000 feet; while in the great lake region around Victoria Nyanza we have snow-capped Kilimanjaro rising to near 20,000 feet, Kenya almost the same height, and Ruwenzori about 17,000 feet. Round the north of Lake Nyasa the mountains rise considerably above the 6,000 feet limit, as do patches between that and Victoria Nyanza, while in South Africa, again, we have the great Drakenberg range, reaching in places 10,000 feet. Here and there we may have other isolated patches, but they are few and far between. We have nothing on the African Coast comparable to the magnificent range of the Himalayas, stretching across the north of India, and spreading out northward into the greatest table-land in the world, from which rise other ranges scarcely less grand than the Himalayas. Nothing even to compare with the Alps, the Carpathians, the Pyrenees, the Apennines, the mountains of Scandinavia. Nothing at all like the triple chain of the Andes, guarding the west coast of South America, and stretching northwards through Central America into North America as the Rocky Mountains right on to Alaska.

It may be asked what all this has to do with Commercial Geography. It has a vast deal to do with the industrial development of Africa, and without the possibility of such development, the occupation of commerce is gone. These mountain ranges are the great moisture catchers. When the southern monsoons sweep northward over the Indian Ocean in the summer, they throw themselves against the cool Himalayas, and part with their moisture to such an extent, that in some places the rainfall in India reaches 800 inches a year. Thus the configuration of a country has much to do with its rainfall, and on its rainfall its industrial development largely depends. In Africa there are no great coast or even inland ranges to cool the moisture-laden air that would pour over them. If we look over the rainfall map we see that scarcely a drop falls over the whole of Sahara; the northern slopes of the Atlas catch what the winds from the north can bring with them. At Alexandria, about 8 inches fall in the year, but by the time the wind gets to Cairo it hasn't a drop to spare; there, scarcely an inch falls in the year. Over much of the Sahara the rainfall is almost nil; nowhere above 10 inches; in a region where the heat is so intense, and the evaporation so enormous, this is of no avail. Beyond the tropic of Cancer the rainfall begins to increase, and a wide belt here has from 10 to 25 inches, a scanty supply for the tropics. Still further south again, at about 10° north, over the Central Sudan, we have from 25 to 50 inches, and this is just enough to give the inhabitants hope of their labour, if they till the ground and store the water for irrigation purposes. In a fairly broad belt extending to about 10° north of the Equator, and not quite so much on the south, we find a region of fairly abundant rainfall, say from 75 inches to about 100; for hardly anywhere in Africa does the rainfall exceed that. On the south again, and especially towards the south-west, the rainfall graduates off. From the mouth of the Congo, in a broadening belt to the east coast, down the coast of Natal to



about Port Elizabeth, the rainfall is fairly abundant, but west of that we have sterile regions like the Kalahari desert, Damaraland, and Namaqualand, which are little better than the Sahara; and in the interior parts of Cape Colony the annual rainfall in many places is not more than 10 inches. In the highlands of Abyssinia the average rainfall greatly exceeds that of the surrounding sterile regions. In Central Africa the rainy season follows the sun north and south between the tropics, for reasons which can be easily found out; and on the Gold Coast and the Coast of Angola we find two rainy seasons.

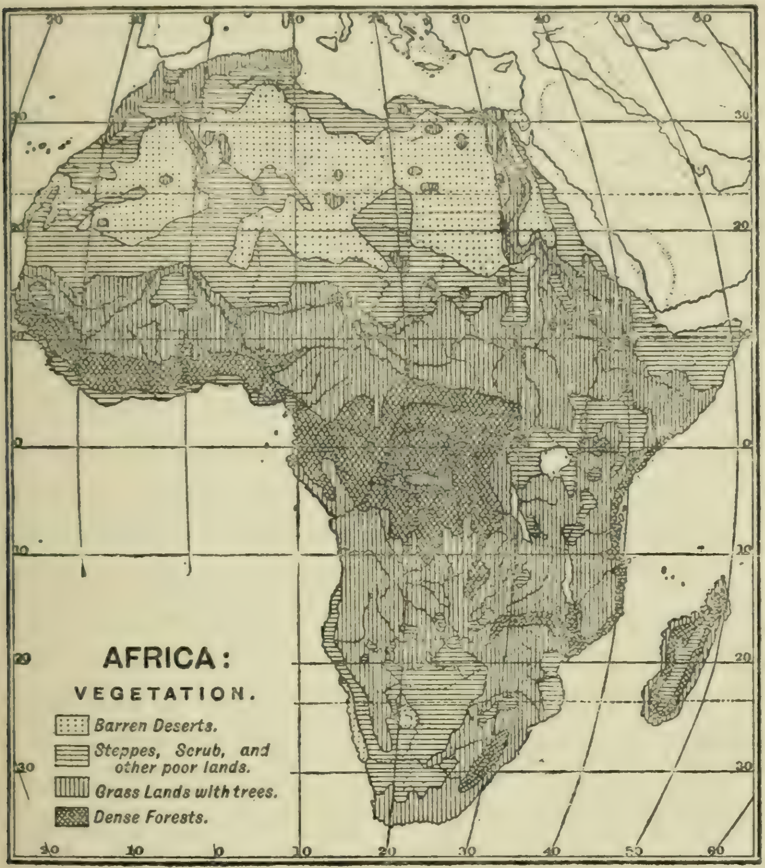
Thus over a very extensive area of Africa, the rainfall is much too scanty to make agricultural and planting operations profitable without great trouble and expense, in the way of storage of water for purposes of irrigation. In many productive wheat areas of India, it is only by means of a network of irrigation canals that anything is made to grow at all. Twenty-four to thirty inches is the average rainfall over the fine wheat-growing countries of Central and Eastern England; further north even less would do, as it would in the Western States of America. But under the torrid heat of tropical Africa, even 50 inches is a scanty supply, except when forest or thick bush or grass hides it from the rays of the sun, which would scorch it up before it had time to sink into the ground. Again, in many parts of West Central Africa, the soil is largely composed of the material known as laterite, so

porosity
quickly
to ground

porous that the moisture sinks down before it has time to do any good.

There is one other element which must be taken into account before we go further. I have already referred to the torrid heat of Central Africa, and in the last chapter drew attention to the fact that Africa had a far greater proportion of its surface —something like two-thirds—lying between the tropics, than is the case with any other continent. Of the 11½ millions square miles, something like 8 millions have the sun vertical twice a year. If we look again at the rainfall map, we see lines running across it, with figures upon them. These are called isotherms, the regions which they cross have the same average annual temperature. There are two lines, one going across the north near the tropic of Cancer, and another across the south irregularly, with 80° marked on it. That means that on an average all the region between, *i.e.*, the bulk of the continent, has an average annual temperature greater than 80°. The hottest day in our summer is little more than 80°, and a week of that makes us long to rush to the seaside, or the Highlands, or Switzerland, to get cooled down. Fancy what it would be if we had to lead our lives in it all the year round! And remember 80° is only an average; the temperature during the day is generally much higher, it may rise to 120° or 140° in the shade; though at night it may cool down much below 80°, owing to the great evaporation. Within a broad belt on both sides of the equator, there is little difference all the year over; but north and south of that the winter temperature may be something like a pleasant English summer; while in the Sahara the winter temperature may sink 40° below that of summer. Of course on the north coast and the south coast we have a lower yearly average, about 60°, and the winters may be comparatively cool. Take it all in all, Africa is the hottest continent on the globe. But then it must be remembered that when we speak of these averages, 80°, 70°, 60°, and so on, we mean the average at the level of the sea. Now here comes in one advantage of the prevailing plateau character of the bulk of the continent, rising 2,000 to 6,000 feet above sea-level. In the previous chapter we found that the higher we went the cooler it got—about 1° in 270 or 300 feet. Thus it comes about that in the interior, in spite of the want of the cool sea breeze, the climate may be cooler than at the coast; so cold indeed sometimes at night that you want a blanket or two and a fire to keep you warm. Those islands of mountain-land scattered over Africa, the Kameruns, the Drakenberg, the Livingstone Mountains round the north of Lake Nyasa, Kilimanjaro, and Kenya, with the high plateau between, Ruwenzori, Abyssinia, the Atlas, will be found a great boon as sanatoria in the future, when white men come to have more intimate dealings with the continent.

Now, keeping in mind the distribution of rainfall, the distribution of the sun's heat, the prevailing plateau character of the Continent, let us see what are the results as to the productiveness of the soil, as to the habitability of the Continent, as to its capacity for colonization—in short, what is its commercial value? Compare the map which illustrates the great distributions of the soil, with those that show distributions of altitude, of rainfall and heat;



we cannot fail to note a very marked correspondence. Take, first, the rainless region of the Sahara, with its almost entire absence of vegetation, its enormous stretch of sand dunes and sandy plateaus strewn here with sharp stones and there with pebbles. In a few places, as at Ahaggar, Tibesti and Ghat, it rises to 4,000 and to 6,000 feet, and even more, and then a Wady may occasionally have water in it. Indeed, scattered over the Sahara are numerous spots of greenery—they are called oases—where, from some cause, water has accumulated, proving that it is almost entirely the want of this element over the bulk of this part of Africa that gives it its desert character. In time, perhaps, when the world gets over-populated, it may be found profitable to obtain water by sinking wells, or otherwise to irrigate this great desert and make it support a fair population. The desert encroaches upon all the countries on its north, Morocco, Algeria, Tunis, Tripoli; but in these countries on the northern slopes of the hills, in the valleys between the ranges, and in the lowlands on the Mediterranean, various cultivations flourish—wheat, maize, tobacco, dates, and the vine. Magnificent grapes are produced in Morocco, and under proper guidance it might be made one of the great wine-producing countries of the world. On the desert, south of Algeria, the French have raised millions of date palms, largely by sinking wells in the sand. On the east of the Sahara we come to the great valley of the Nile, that once mysterious river, whose yearly overflowings make it possible for a dense population to live on its banks, on which, as we have seen, flourished one of the great civilizations of the past. But the strip of fertile land is narrow, and between the Nile and the Red Sea the country is mainly desert. Still the Sahara is not entirely without commercial interest, for on its oases grow those date-palms, the fruit of which form an article of export.

Coming south, when we reach the twentieth degree of north latitude, where we meet with our first belt of rain, we enter upon a region where the grass begins to grow, and as we go south it gets more luxurious and more permanent, and the trees appear in greater numbers. Just about Lake Chad we enter one of the most interesting regions of Central Africa, from a commercial point of view. Here we are in what is known as the Central Sudan, and here the rain falls in fairly useful quantity. Sokoto, Gando, Wadai, Darfur, Kordofan (all now absorbed in the British, German, and French spheres), though they have their dry and barren areas, form, on the whole, a fine and fairly well-watered region, with abundance of grass and wood, yielding forage for flocks and herds. Between the Niger and the Nile this region covers about 800,000 square miles. West of the lower Niger again, between that and the Gold Coast, we have even a better-watered and therefore, a richer region, so far as the produce of the soil goes.

South of the Sudan we enter upon the great tropical forest of Africa, which gets denser and denser as we go south, towards the Aruwimi tributary of the Congo, covering most of the Congo region, from the Albert Nyanza and Lakes Albert Edward and Tanganyika, quite half way to the coast. That forest, it will be seen, coincides with the region of greatest rainfall. East of it, and south-east of it, after crossing Lake Albert and

Lake Tanganyika, we come almost suddenly into a totally different country, marked, I believe, by a lower rainfall. Here there are, in general, plenty of trees, but scattered about in clumps, as in our English parks, though sometimes closing up into a forest character, while the grass is most luxuriant. But in this eastern half of tropical Africa, extending from the north of Mount Kenya south to Lake Nyasa, there are large areas of barren or desert lands, in which scarcely a stream is to be met with, and where the explorer or trader may have to journey for two or three days without coming to water. As we approach the Zambezi, water becomes more plentiful, and grass and trees abound; and in the country around Lake Bangweolo (where Livingstone died), and to the west where the Zambezi and several of the feeders of the Congo rise, the country is a great sponge. But just to the west of Bangweolo, the country rises to from 4,000 to 7,000 feet in some places, and in Katanga and some parts between that and the west coast, the country is capable of great development, and may, in the future, become a flourishing region. The banks of the Zambezi itself are rank with vegetation, and much of the region to the south is a great swamp.

In the eastern section we have Matabeleland and Mashonaland, now included in Rhodesia, and north of that, on the other side of the Zambezi, Nyasaland and Northern Rhodesia. This, on the whole, is a fine region, capable of great development so far as its soil is concerned. Mashonaland, on the north-east of Matabeleland, a plateau of from 3,000 to 5,000 feet, covering thousands of square miles, traversed with a net-work of streams, and abounding in vegetation, is one of the finest regions in all Africa. One who knows it well maintains that it is destined to be the great country of South Africa in the future, and will become the home of thousands of English farmers. But as we go westward the country gets drier, and more and more unpromising. The great bulk of Bechuanaland is for months parched up, though much of it might be made a fairly good cattle country. Then we come to that southern Sahara, the Kalahari Desert, which is continued into Namaqualand and Damaraland, right on to the west coast.

It will be seen how all this corresponds with the rainless region of the south-west. All the coast region between the Limpopo and Port Elizabeth, we said was a region of abundant rain; and it is a region rich in vegetation, capable of being made of great commercial value. Unfortunately, it catches most of the rain that comes from the Indian Ocean, and the Transvaal, the Orange River Colony, and much of Cape Colony, are often badly off for water. Still there is plenty of grass, as a rule; it is a good sheep and cattle country, and a certain amount of cultivation is carried on. As we come down to the coast rainfall gets more abundant, and the land therefore more suited for agriculture, but still more for sheep and cattle. But in the very heart of the Cape we come upon another great patch of land known as the Karoo, which may be waterless for years.

Take it all in all, it is not, I think, too much to say that some 4 million square miles, more than one-third of Africa, is undoubted desert, while another million is just beyond the desert stage, and could not be made of any value for planting and agricultural purposes, without irrigation. Even in Africa, south of the Zambezi, there may be long rainless periods, which turn much of the country into desert. Altogether, there is only about one-half of Africa over which Nature is spontaneously exuberant.

There is another factor to which I have only briefly alluded, but which must be noticed before going further. We have spoken of the supply of moisture from above; let us see now how the supply on the surface is distributed. Here, again, we find almost everything gathered into the great central region. All the great lakes of Africa are situated within the tropics, and all the great rivers either flow within that area or originate there. Take the Niger, for example, which rises in what is known as the Futa Jallon region of West Africa, and bends northward to Timbuktu, and then southward to the Bight of Benin. It is entirely tropical, and so is its great tributary, the Binue. Its basin is within the area of greatest rainfall, abounds in natural products, and possesses a soil of which much may be made in the future. On the other side of the continent we have the great Nile. Its mouth is certainly in the temperate zone, but if we trace it up to its sources we shall find that they all lie in the rainy region, directly under the equator. Its great reservoirs, the Victoria Nyanza, and Lakes Albert and Albert

Edward, are just on the line, while the Blue Nile and the Atbara, from which come the Nile floods, rise in rainy Abyssinia, well to the south of the tropic of Cancer. That other magnificent river, the Congo, so far as volume is concerned, the greatest in Africa, with which the names of Livingstone and Stanley are so closely associated, has its origin in that great sponge to which I have already referred. It draws its main supply from Lake Bangweolo, while west of that its feeders are mingled with the head streams of the Zambezi, which, in its turn finds its way to the Indian Ocean, all within the central belt. Look again at the great lakes, the three Nyanzas, Tanganyika, Bangweolo, Nyasa, all within the region of greatest rain. South of that we have the Limpopo, a most useful but unhealthy river, just on the tropic of Capricorn, while the Orange, the only considerable river outside the tropics, lies very nearly along the 30th degree south; but it is of little use. We find rivers marked in the Sahara, but they are mainly wadis or river-beds, with rarely a drop of water in them.

What, then, does Nature produce on the soil of Africa that is of commercial value? We have already spoken of the dates of the north, but after all they do not amount to much in trade, and the Alfa fibre, which grows in Tunis and Algeria, and is used for making paper, is more important commercially. The natural vegetable products of the Central Sudan are of little value from this point of view, as are those of South Africa.

It is evident that nearly all the natural riches of the surface of Africa are gathered into this central belt. What, that is of value, does this well-watered and apparently luxuriant region of Central Africa yield to commerce? We find that india-rubber, the oil palm, the shea butter tree, gums, spices, indigo, and certain seeds, together with ebony, mahogany, and one or two other woods, are the leading natural vegetable products. Some twenty years ago, just when the partition of Africa had been roughly blocked, before Europe had seriously began to exploit Central Africa, and railways were practically non-existent, the whole of the exports that came out from the West Coast of Africa between the two tropics, including every animal and vegetable product, did not much exceed in total value 5 millions sterling. Now that for the last twenty years Europe has taken the continent seriously in hand, the value of these native products has been trebled, and cultivated products are being introduced. But even here much of the soil is not well adapted for artificial cultures, though with an adequate supply of labour and capital the region might become of considerable commercial valve. Many native products are untouched; coffee grows wild in several places, and could no doubt be cultivated with good results. Indigo, cotton, rice, and maize are being experimented with on a small scale, and could be grown in large quantities, but in spite of the spread of railways and many other improvements, there are still many obstacles in the way of extensive operations. It was even worse on the east coast twenty years ago. Including the Portuguese colonies on the south, and Abyssinia on the north, the total exports of East Central Africa probably did not amount to 3 millions, and the total trade (imports and exports) of all Central Africa, by sea, was probably overestimated at 15 millions sterling. Although East Central Africa has not progressed so markedly as has done the Western Section, still the exports may now be estimated at about 5 millions. Of course there is a certain amount of trade—in which I am sorry to say slaves form an important item—that finds its way by the various caravan routes across the Sahara to Morocco, Tripoli, Algeria, and Tunis; but it is small.

I have referred to the Central Sudan, which may be said to extend from Timbuktu to the Nile, and is now divided up between England, France, and Germany. This, with the thickly-populated and healthy region around the great lakes, forms, from a commercial point of view, one of the most promising regions in Central Africa. They are fairly well watered, just enough to make labour necessary and hopeful; the people are energetic and industrious; the land is well-suited as a whole for cereal crops like wheat, maize, barley; sheep and cattle flourish, and their number might be greatly increased. As for the people, who are mostly Mohammedans, they are comparatively civilized. They have many wants, and over a large extent of country every man wears about 40 yards of cloth. Here, then, is a market worth developing. But, notwithstanding all this, we have in this luxuriant Central Africa, a striking example of the statement made in the second chapter, that the mere native animal and vegetable product of a country can never become of very great commercial value. Abyssinia might be made much of as a stock-breeding country; while the country in the South—Shoa—now under the King of Abyssinia, is capable of great agricultural development.

Outside the central belt, the native vegetable and animal products are of even less value than within the tropics. The only animal product of any great importance is ivory, and the export of that, as has been said, probably does not exceed a million sterling annually. There is no doubt that the elephant, which, like the rhinoceros and hippopotamus, is a survivor from a past geological period, is doomed to extinction. At one time it was found close to the south coast; now, few are to be met with till near the Zambezi. It is also gradually retiring to the interior from the east and west.

The natural surface products of the States along the Mediterranean are hardly worth taking into account commercially. They are nowhere compared with the products that are grown artificially. The total exports of Egypt alone amount annually to over 24 millions sterling (having doubled in about 15 years), and that from an area of some 13,000 square miles—for that is practically the whole area of productive Egypt. This is more than equal to the total exports from the whole of tropical Africa.

The export of cotton alone from Egypt amounted in value to over 20 millions sterling in 1906, almost equal in value to all the exports from the east and west coast of Central Africa. Wheat and rice, and beans and sugar, all cultivated commodities, form important articles of export from Egypt, and even wool occupies a considerable place. Partly under the suzerainty of Egypt, but largely controlled by British officials, is the Anglo-Egyptian Sudan, covering nearly a million square miles, rescued from the withering domination of the Mahdi in 1894-5, now being developed in all directions, and in time may become a great cotton and fibre, and rice-producing territory. It is with Tunis and Algeria, as with Egypt, the cultivated products are of far more value than the natural. And yet, though the cultivable area of Algeria is much greater than that of Egypt, its total trade is considerably less, something like 24 millions sterling annually; while that of Egypt is 48 millions (1906). Yet, under the French, Algeria has made great progress, when we consider that by far the greater proportion of its surface belongs to the Sahara, and that it is mainly on the terraces facing the Mediterranean, and the valleys between the hills, that agriculture and stock-raising are possible. Cereals, like wheat and maize, wine, wool, sheep, and cattle—these, and articles of a similar kind, are the main exports of Algeria, and also of Tunis, which is likewise under French domination. Tunis is only about one-third the size of Algeria, and its population, 1½ millions, is small. Its total trade was only two millions sterling 15 years ago, but is now six millions, of which exports count for about a half, and among these exports wheat and barley, and olive oil, hold an important place, though Alfa fibre, which may be regarded as a native product, is not unimportant, while in recent years the native deposits of phosphates have been largely worked, yielding about one-fourth of the imports. When we come to Morocco, we see what an important element, from the commercial point of view, is the character of the people who occupy a country. Morocco, on its plains that face the Mediterranean, in its valleys, and on the lower hills of the Atlas, is a country well adapted for wheat and other cereals, as well as for sheep and cattle, while its grapes are among the finest in the world; but its total trade is less than that of Tunis, 4½ millions sterling. About one-half of its exports are hides and skins, others being cattle, wool and eggs. Much more could be made of Morocco if European enterprise had sufficient scope.

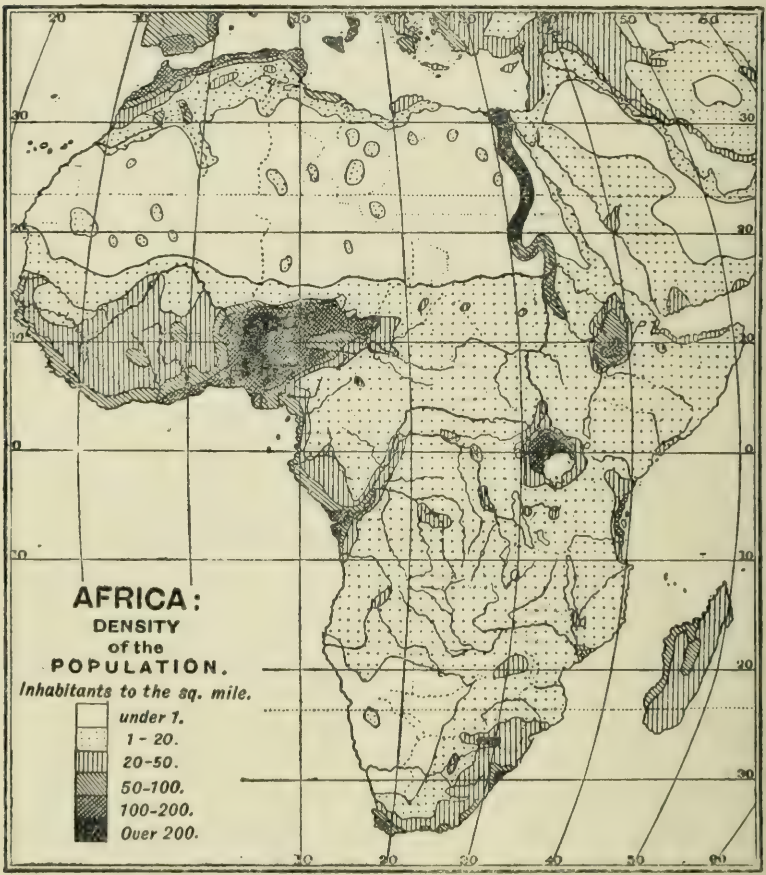
Twenty years ago one-half of the total commerce of Africa, that is, about 40 millions (one-half representing exports), had to be credited to the countries along the Mediterranean, countries whose combined area is only about 500,000 square miles, and of that only a small proportion capable of cultivation. Of the remaining 45 millions of trade with which I credited the continent of Africa, 30 millions had to be allotted to the countries at the other end of the continent,—the Cape, Natal, Orange Free State (as it was then), and the Transvaal. But the rate of development has varied since then to some extent in North and South Africa, and that mainly because, after all, there is a larger area available in South Africa, the conditions are more adapted to white men, and the output of gold and diamonds has vastly increased and gone to swell the exports. Still though wool is important, such articles as hides, ostrich feathers, and sugar, are staples that are of permanent value. The total trade of Africa, south of the Zambezi, has recently trebled in fifteen years, and now amounts to about 115 millions sterling. The southern countries are not so well off for water as the countries on the north, and it is doubtful, therefore, if they can ever grow wheat or maize or other cereals to such an extent that they would form important articles of export. But leaving out the minerals, the export trade is virtually one which deals with introduced products, and native animal and vegetable produce count for little. But the great problem in South Africa is whether, when the gold and the diamonds are exhausted, she will be able, like Australia, to develop what may be regarded as the permanent capabilities of the region, agricultural and pastoral. It is mainly a question of water. What is clearly brought out is this, that nearly four-fifths of the total export trade of Africa is derived from an area of less than two million square miles, and that the other nine millions of square miles probably do not yield 30 millions' worth of produce for export.

Although great progress has been made in 20 years, still this is a deplorable state of things for a great continent, as may be seen from the fact that the value of the maritime exports alone of our Indian Empire, covering, with native States, 1½ million square miles, is something like 120 millions sterling, nearly half being represented by such cultivated products as wheat, cotton, opium, jute, tea, and indigo. Or if we take America, which began its modern career about the same time as Africa ; we find that its total foreign trade represents about 1,100 millions sterling, of which about 600 millions must be credited to the United States alone, with an area of only a little over 3 million square miles.

These figures will give some idea of the position this great continent of Africa occupies in the commercial world. And the lesson taught is, that if she is to progress at all, it must be not so much by the development of her native animal and vegetable commodities, as by the active cultivation of introduced products, or of products already existing, capable of being artificially fostered. Even minerals will in time be exhausted, and gold after all can only be of permanent value to a country where it is utilised for the development of its permanent resources. In the swampy regions of the Nile, the Niger, and the Congo, there is a splendid field for rice. Along the northern border, wheat, maize, and other cereals, as well as the vine, are capable of much greater development than they have reached ; and even in some of the high lands of the interior, around the great lakes, in the Sudan States, on some of the higher ground between Tanganyika and the east coast, in Matabeleland and Mashonaland, cereals of various kinds might be successfully grown, and so add greatly to the commercial value of Africa. But in the tropical region itself, in the basin of the Niger and the Congo especially, there is no doubt that many tropical and sub-tropical products could be cultivated with success—cotton, coffee, indigo, tobacco, sago, sugar-cane, cacao, and spices. Why should they not be? And since the serious occupation of the Continent by Europeans, experiments have been made with various cultures which it is hoped will be successful.

It is a suggestive fact that no native civilization has ever yet been developed in a tropical region of exuberant vegetation like Central Africa, and the Amazonian region of South America. It may be that the climate is suppressive of all serious exertion, and of all attempt on the part of the native to rise to a higher level; or it may be because the inhabitants have but to put forth their hands to hunt, to fish, to gather the vegetable produce provided by Nature, in order to supply all their wants. If even a colony of Englishmen were planted on the Congo or the Niger, and were to settle there permanently, it is possible that if not they themselves, at least their descendants, would degenerate.

This factor of population, so important from a commercial point of view, we have not yet touched upon. One of the maps exhibits the density of population over Africa, and an examination of it will show that the distribution of this element has some relation to the distribution of rainfall. Some patches in the Sahara are totally uninhabited, and over the great bulk of it there is only about one inhabitant to every square mile. South of the Sahara, in the centre and south-east, there is a deeper tint, indicating less than 50 persons to the square mile, and that ratio extends over most of Cape Colony, while in the rainless regions of the Kalahari Desert, and Namaqualand and Damaraland, the density is not much more than in the



Sahara. Along the northern coast again, from Morocco to Tunis, in the lower Nile Valley, about Abyssinia and Shoa, with patches around the Great Lakes, the Central Sudan, and the whole of the Niger basin, the Zanzibar Coast, the lower Congo basin, we find apparently from 100 to 200 persons to the square mile, while in the immediate neighbourhood of the lower Niger the population is even denser. When we remember that the average density of population in England is 500 to the square mile, it is evident that Africa as a whole is thinly peopled. The average over the whole is probably not 20 to the square mile. The total population is sometimes stated to be 200 millions, but I believe this to be an excessive estimate. Mr. Ravenstein placed it, some twenty years ago, at less than 150 millions. It may be taken for granted as a general rule, that the people have congregated most densely where the natural food products are most exuberant, or where the land lends itself to culture with the least outlay of labour. The occupation of the continent by Europeans, leading as it does largely, to the cessation of native wars, will no doubt tend to favour an increase in the growth of population; but on the other hand, the introduction of civilized habits, clothing and diseases, may tend in the other direction, until, at least, the native population becomes accustomed to the new regime.

It is important, from a commercial point of view, to know the characteristics of the people we have to deal with. Setting aside a few remnants of primitive peoples, and overlooking the many subvarieties, there are three great divisions of population in Africa. We find along the north border, in the West Sahara, in Gallaland, Somaliland, and on the north-east coast, what are known as Hamitic people, of whom the Berbers of Morocco may be taken as the type. When they have fair play, they are on the whole an industrious people. The Fellaheen of Egypt, and the Fulahs of the Western and Central Sudan States, are to some extent of this type. These are all a people from whom something may be expected. Another type devoted to trade and industry, not always, it is to be regretted, of a legitimate kind, are the people known as Semitic, closely akin to the Hamitic, the great family to which the Arabs belong. This type we find as Moors along the Mediterranean, in the West Sahara, and in the Central and West Sudan, and to some extent on the east coast. These are the people usually called Arabs (though often mixed), some of whom have acquired an evil reputation, in connection with the slave trade; but there is no doubt their enterprise and energy might be utilized for the promotion of legitimate trade. Another branch of the Semitic type are the people who inhabit a large part of Abyssinia, and who have the true trading and industrial instinct. But the Hamites and Semites form only a small proportion of the inhabitants, the bulk of whom belong to that interesting race whom we indiscriminately designate Negroes. The true Negroes are confined to Upper Guinea, Senegambia, the Central and

Eastern Sudan, and they are, on the whole, a fine race, and under good guidance might be trained to fairly industrious habits. They are probably the keenest drivers of a bargain on the Continent. Around the great lakes, and south through the centre of the Continent, spreading east and west to the coasts, and reaching even to the Cape, we have what is known as the Bantu family, of which the Zulu may be taken as a type. But within this family there is great variety.

For the future development of Africa, it is with these Negroes and Bantus we shall have mainly to reckon. Without labour we cannot develop the Continent, and if we cannot get the native to work, what is to become of Africa? We are often told that the Negro is a lazy being, who never will be trained to habits of industry. But as a universal statement facts belie that assertion. When he can pick up his living with a minimum of exertion, he will do so; that is human nature. But in South Africa, in the Cape, the Transvaal, Natal and elsewhere, he does work, if only spasmodically and under compulsion. In Central Africa, in Unyamwezi, the people are most industrious, probably, because, in order to make a living in the region where the rain is by no means plentiful, labour is absolutely necessary. On some of the plantations of the Germans, inland from Zanzibar, the people come quite willingly to work, induced to do so by the wages offered, and, no doubt, also by some measure of compulsion; in the Congo Free State, compulsion is the main influence brought to bear. At the same time it must be admitted that voluntary hard work is not congenial to a people who for ages have been accustomed to do no more they were forced to do. I think it is quite possible, by judicious treatment, to lead the natives on to industrious habits; but we must not expect, in this and other matters, to force them in a generation or two up to a stage which it has taken us 2,000 years to reach. Meantime, in South Africa, experiments have been tried in the introduction of labour from India, the Malay Archipelago, and China, but the result has led to complications which place the administration in an awkward position.

The religion of a people is often an important consideration from a commercial point of view. If we look at the map of the religions of Africa, we see the continent is divided into two great sections. The broad northern half, coinciding with the Hamitic and Semitic region, is almost entirely Mohammedan (Abyssinia being a marked exception, the people here being Christians of a very early type), the southern or Negroid half is mainly heathen. Mohammedanism spreads far down the east coast, and has sent streams southward to the Congo. In connection with this division there comes in the subject of slave-hunting, which is so great a foe to legitimate trade. But observe that it is against the religion of a Mohammedan to enslave his fellow-believer, and, therefore, the slave-hunting grounds are only found in the heathen section, down into which the Arabs carry their raids, depopulating whole regions, and rendering legitimate commerce and industry impossible. At the same time it must be said that where Mohammedanism prevails, as in the Central and Western Sudan, the people rise a stage or two higher in civilization and industry. So far Christianity has made comparatively little headway in Africa: its influence is felt mainly in the south, and in patches along the west coast. The Christian trader will find it exceedingly difficult indeed to do much business with the Mohammedan peoples, however desirous he is to have them for customers. With the heathen African again, when he has not been ill-treated by slavers, or by earlier traders and explorers, it is easy enough to deal, if only you are not in a hurry.

The question may now fitly be asked, how far Africa is colonizable by Europeans, upon whose active intervention, for the way of directing it by direct exertion, the development of the resources of the continent depend. Over the whole of Africa there are only a little over two million of whites altogether, and of these over a million are south of the Zambezi (580,000 in Cape Colony alone), and about 900,000 along the Mediterranean border, and in Egypt. In Central Africa, between the Zambezi and the Tropic of Cancer there are only about 17,000 whites employed in official capacities, or as superintendents of labour, as traders or missionaries. This shews, among other things that, so far, Europeans have not been able to colonize Central Africa in the true sense of the term. This question of labour, then, is one of the most knotty points to be solved in connection with the commercial development of Central Africa. But all over Africa there are places where Europeans can at least maintain health and vigour; in the highlands round the great lakes; on the slopes of a few high mountains; on the high plateau which occupies the regions between Tanganyika and the coast, and to the west of Lake Nyasa; the Shiré Highlands, south of Lake Nyasa; the magnificent plateau of Mashonaland. The great thing is to avoid the malarious low-lying coasts, and the banks of tropical rivers. By taking reasonable precautions, no man with a sound constitution need be much the worse for even some years' stay in Central Africa; but it has yet to be proved whether at these high altitudes, colonization, in the true sense of the term, by white people, is possible. In this connection it should be noted, as has already been pointed out, that the discovery of methods of dealing effectively with the malarial mosquito has rendered tropical areas more tolerable to Europeans; and that, as has been proved in the case of the construction of the Panama Canal, Southern Europeans, at least, Italians, Spanish and Portuguese, can do hard labour under a tropical sun, with impunity.

There is one other resource of Africa which I have hardly yet mentioned, but which, in the future, will, it is hoped, become of great commercial value; I mean its minerals. In 1889 the value of diamonds alone exported from South Africa was over 4 millions sterling, and of gold a million and a half. In 1905 the export of diamonds was valued at about 8 millions, and of gold over 20 millions.

South African gold, at present, comes mainly from the Transvaal; but it exists in large quantities in the rocks and rivers of Matabeleland and Mashonaland, and on the other side of the Zambezi in Nyasaland, and probably also in Damaraland. On the Gold Coast it has been known for centuries, but the climate is so deadly that it is difficult to work it. Elsewhere, in Abyssinia, Senegambia, on the southern slope of the Atlas in Morocco, we know there is gold. Now, gold is not to be despised; in its own way it is invaluable. But if a country has no other resource to develop, it is practically worthless for commercial purposes. People do not make a country their home simply for its gold; they go to make their pile and come away. For a new country like South Africa, Australia, or California, I think the greatest service done by gold is to attract vigorous workers, who will use it as a means of developing the permanent resources of the country its agricultural capabilities, its coal, its iron, its copper, and other minerals, of which there is abundance in Africa, and also in encouraging manufactures. That has been the case in Victoria, in New South Wales, and in California, and it is hoped that this will be the case in South Africa. In the Transvaal and Natal, on the Zambezi, and even at the Cape, there is, no doubt, a great supply of coal, and, it is believed, also of iron. The export of copper ore from the Cape exceeds half-a-million sterling annually. Copper, also, undoubtedly exists in abundance in the south of the Congo Free State, and on the south of the Atlas, and copper, iron and lead are staple exports of Algeria. In other parts of Africa we know that copper, iron and tin exist; we may be sure as soon as these minerals can be made to pay, they will be worked; and in South Africa, in time, iron and copper manufactures may become an important industry.

For the working of minerals, and, indeed, for the development of all the resources of Africa, means of communication are of the first importance. In a former chapter I referred to the monotonous, almost unbroken, outline of Africa; and pointed out that there are no great arms of the sea leading into the interior. Even colonies like the Cape and Natal have great trouble with their harbours. There are a few good harbours, however, like Mombasa, Zanzibar, Delagoa Bay, and the mouth of the Congo, but they are few and far between.

Now as to internal communications. From a glance at the map, we might fancy Africa must be well off for great rivers, and therefore for water-communications leading into the heart of the continent. But here, as often elsewhere, appearances are deceitful. Remember the configuration of the surface of the continent: how it rises in terraces from the coast to the table-land which covers most of the interior. Well, these rivers have to find their way across the table-land and down its terraces to the coast. The result is that every one of the great African rivers, the Nile, the Niger, the Congo, the Zambezi, is more or less obstructed by cataracts. Beyond the tropic of Cancer the Nile is broken by a series of such obstructions.

The Niger is not so ill-adapted as the others for navigation, though its delta is puzzling, and the bars at its mouth sometimes awkward. Practically it may be navigated by launches and large boats up to about Bussa; and a little engineering could make it navigable as far as Timbuktu. On its great tributary, the Binue, boats or launches can ascend to not far from its source. The Niger, then, may be regarded as on the whole the best river highway in Africa, and as it leads into the rich Central Sudan, its commercial importance is evident. The magnificent Congo, on the other hand, is badly handicapped. Large vessels may sail up 150 miles from the mouth, to Vivi; but here navigation is interrupted by over 200 miles of rapids, caused by the river tumbling down the edge of the plateau on its way to the sea. Above that there is 1,000 miles of uninterrupted navigation, while not a few of its tributaries, especially on the south, form excellent highways. The Zambezi is of little value as a commercial highway. Vessels of small size, if they manage to pass the bars at the delta, may, when the river is not too low, go up some distance beyond the mouth of the Shiré; but above that there are rapids and shoals which make navigation extremely risky. No doubt the navigation of the lower river could be improved, and with the aid of the Shiré and a short railway, a continuous trade route might be made to Lake Nyasa.

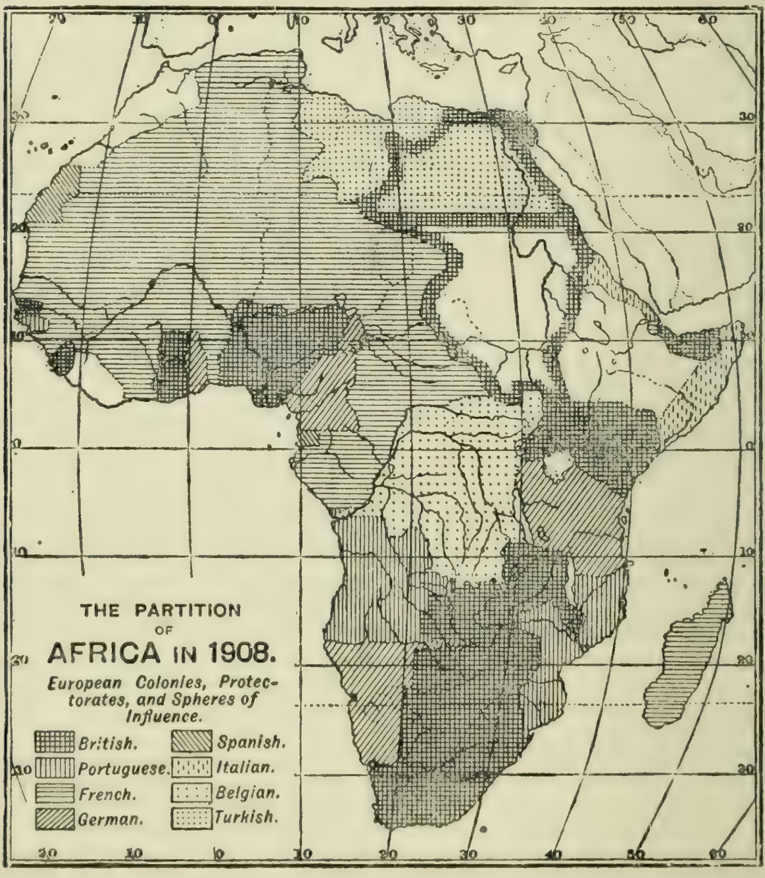
On the whole, the centre of the continent is not badly off for water communications, but these are of little avail, for a commerce of any dimensions, without the aid of railways. By means of railways, South Africa has been opened up from the Cape to the Zambezi, and across that river, at the great Victoria Falls, for some 300 miles. It is hoped that in time this line will be continued to Katanga, and join on to the railway which has been planned from that rich mining country to the West Coast, thus forming a continuous line to the Cape. If continued also to Tanganyika, and another line constructed from the north end of that lake to Victoria Nyanza, on which steamers now run, a connection would be made with the railway which runs from Uganda to Mombasa, opposite Zanzibar. If further, the line were continued to the head of Nile Navigation, then a continuous route would be established from the Cape to Cairo. In the last fifteen years there has been great activity in the construction of railways over considerable sections of Africa. The total length of railways in Africa is at present (1908) 17,500 miles; of this, 9,500 miles are British, 3,400 Egyptian, 3,550 French, about 900 German, and the rest Portuguese.

In Egypt, as far as Khartum, Algeria and Tunis, there are important railway systems. In the extensive territories held by France in West Africa, a great network of railways is under construction, which must do much to develop and tap the resources of the Niger and Senegal regions, while in Sierra Leone and the Gold Coast much progress has been made in the same direction, and steps are being taken to extend the same service to British

Nigeria. In other parts of Central Africa roads are being constructed. There is no doubt that the building of railways and the construction of good roads will do more for the development of Central Africa, and the civilization of its natives, than almost any other means; they may not pay directly at first, but the capital invested will in the long run produce excellent results. Even yet the commercial highways in many parts of Central Africa are mainly caravan routes from the east and west coast to the interior, and from the Sudan States across the desert to the countries on the Mediterranean. Moreover, Africa is covered with a network of paths leading from village to village, but as these are only about a foot wide, formed by the naked feet of generations of natives, their commercial value is almost nil. So long as canoes, camels, men, and ox-wagons are the only means of carrying merchandise over a large part of Africa, trade must be trivial. Again, while in the territories under Europeans currency is being introduced, still over much of Central Africa the only currency existing consists of beads, cowrie shells, cloth, and such like clumsy and heavy articles—a sure preventive to the extensive development of commerce. So far as communication with the outside world goes, there are now lines of steamers from Europe that touch at many points of all the coasts, a telegraph encircles the continent, and lines are rapidly spreading over the interior.

[illegible] only briefly refer here to the partition of the continent among the Powers of Europe. Until

1884, when Germany came into the field as a colonizing Power, England did not realise the value of her possessions in the Dark Continent; not indeed until she had lost much she might have kept. On the whole, however, in the scramble for


THE PARTITION OF AFRICA IN 1908.
European Colonies, Protectorates, and Spheres of Influence.
British.
Portuguese.
French.
German.
Spanish.
Italian.
Belgian.
Turkish.
20
10
0
10
20
30
40
50
60

Africa, we have no reason to complain of our share. All in all, for development by Europeans, the great region south of the Zambezi is more favourably situated than any other part of Africa of equal extent. All this is virtually under British influence, except the barren region of Damaraland and Namaqualand, the chief port of which, Walfish Bay, belongs to the Cape. Nearly all the country between Lakes Nyasa and Bangweolo is British.

The whole of the region around the middle and lower Niger is ours, securing us, if we are prudent and enterprising, the trade of the Central Sudan. We have four little Colonies on the Gold and West Coast, three of them with important Hinterlands, not to be despised. Egypt is no doubt a dependency of Turkey, but at present she is in British hands, and the extensive Anglo-Egyptian Sudan, rescued from the blighting tyrrany of the Mahdi, is practically British, and is being developed and its people civilized and educated with a success which is gratifying. Outside the Red Sea, opposite Aden, we have the long strip of the Somali Coast, while southward we come upon the British East Africa Protectorate, Uganda and Zanzibar, where, already, railways and harbours have been constructed, and routes opened up to the very desirable regions round the great lakes. Germany's share of Africa is immense, probably something like a million square miles; and although much of German East Africa is badly watered, still its resources are capable of extensive development, and the region is being rapidly brought under European enterprise; her most hopeful possession at present is Kameruns and Togoland, where plantation work is being successfully carried out. German South-West Africa, though much of it is desert, may be developed into a great cattle-rearing and pastoral country. Portugal exercises nominal sway over large areas both in East and West Africa; but though she has been there for four centuries, she has done practically nothing to develop her possessions. The immense area of the Congo Free State, established and founded by International Sanction under the suzerainty of the King of the Belgians, ostensibly for humanitarian purposes, and for freedom of trade to all comers, rapidly developed into a Protected State under the absolute control of King Leopold, with no thought of the welfare of the native, but with the sole object of exploiting the rubber forests for the benefit of himself and of the companies sanctioned by him. France, too, possesses an extensive territory, extending from the Congo to Lake Chad, and practically the whole of the region between the Upper Niger and the coast, and north to Algeria and Tunis, which we have seen are of solid commercial value. Italy was also smitten with the fever for foreign possessions. On the Red Sea coast, and on the coast between Cape Guardafui and the Jub River, she has an enormous stretch. Italy's attempt to include the whole of Abyssinia in her "sphere of influence" proved a disastrous failure, though the total area of Eritrea, as it is called, with Massawa as its port, is 88,500 square miles.

Thus not much remains of Africa to scramble for, practically nothing indeed but Morocco and Tripoli (the latter belonging to Turkey), and perhaps Liberia, the limits of which in recent years have been much restricted by French and British Boundary Commissions. At present, Britain's share of the total trade of the continent amounts to about 50 per cent. of the whole; that is to say, supposing the total trade, imports and exports, amounts to 200 millions sterling, probably a high estimate, annually, Britain's share comes to 100 millions; France ranks next with 26 per cent.; leaving the remaining 24 per cent. to be divided between Germany, Portugal, Spain, Turkey, Russia, and other countries.

We can see now why Africa has been the last of the continents to be undertaken by European enterprise. But, poor as it is compared to other continents, there is ample room for industrial and commercial enterprise. The progress that has been made in twenty years, since the practical completion of the partition of Africa among the European Powers—commerce has increased by 150 per cent. —may be taken as an assurance that its resources will be developed at an increasing rate. We cannot afford to neglect any market, nor any source of supply, now that commercial competition among the nations is so intense. So far we have not much reason to complain of our lot. It is for us, in the near future, to secure such a position in Central Africa, and to obtain so thorough a knowledge of its possibilities, that our share of its commerce shall at least be not diminished.

CHAPTER IV.

THE BRITISH EMPIRE.

IF we look at a map of the world and note the geographical distribution of the British Empire, we may be able to realise the force of the saying that the King reigns over a realm on which the sun never sets. While the great life-giver is still blazing over India, he is high in the heavens of Aden and Cyprus and Malta, and our South and East Africa possessions; his early beams are rousing to a fresh day's work the people of the Mother Country and their fellow citizens in West Africa, the tiny islets of the Atlantic, and Gibraltar. As he rises in the heavens, his rays begin their march across the great Dominion of Canada, spreading their genial influence southwards to the West Indies and British Guiana, and still further south to the remote Falklands. One after another the ever-welcome light bathes in glory the many island groups and islet gems that fringe our Empire on the broad bosom of the Pacific. Anon it reaches Fiji and New Zealand, and breaks upon the coast of the great Australian Continent and New Guinea. An hour or two later the face of our luminary beams across the horizon on North Borneo, the Straits Settlements, Hong Kong, and Burma; and ere his day's work is done, he may even have a smile to spare for the lonely Keelings, and their far-away neighbours, St. Paul and Amsterdam.

From our standpoint as subjects of the King, we might divide the world into two parts; ourselves on one side, and the rest of the world on the other —the British Empire and Foreign Countries. Including every scrap of land which goes to make up the British Empire,—the Mother Country, India and her Feudatory States, the self-governing Dominions or Commonwealths, the Crown Colonies, protectorates and spheres of influence,—the area of the Empire is 11½ million square miles; that is to say, one-fifth of the whole land area of the globe. It is three times the size of Europe; 3 million square miles larger than the whole of the Russian Empire in Europe and Asia; ten times the size of the German Empire at home and abroad; 7 million square miles more than the whole of the French Dominions, even including Madagascar; and just equal to the area of all Africa.

On this immense area there live and work something like 400 millions of people, embracing almost every type of humanity under the sun; about the same population as that of all Europe; double that of Africa; more than double that of the Russian Empire and of the whole of America, and four times the population of France and all her possessions. Of the total population of the globe, about one-fourth are our fellow-citizens.

But the British Empire is scattered. It lacks the compactness of the Russian Empire and of the

United States. We find fragments of it in all latitudes and longitudes; and whatever it may be politically, it is good for us commercially that it is so. But it is so because we are what we are, and what the geographical situation of our islands has made us; and it has enabled us, nay forced us, to become the greatest political power on earth. Whether we shall continue to be so with our children growing up into formidable rivals all over the globe, remains to be seen; for remember that the United States, whose trade with us far exceeds that of any other country, was once an integral part of the British Empire.

But let us look at the subject a little more closely; though I have no intention of attempting to work out, at present, the detailed geography of the British Empire. I shall only try to give a few hints as to some of the bearings which its geography has on its commerce, using commerce in the wide sense in which I have already employed the word in previous chapters. There are two divisions of the empire which suggest themselves to us living in these islands:—(1) The empire at home; (2) The empire beyond the seas: the United Kingdom of Great Britain and Ireland on the one hand: and the self-governing Dominions, Colonies, India, protectorates and spheres of influence on the other. To do justice to the commercial geography of the United Kingdom alone, would take a book.

I have already hinted at one or two of the geographical advantages possessed by our islands from the commercial point of view. Our situation with respect to Europe on the one side, and the great Atlantic highway on the other, having the rapidly developing American continent opposite, has given us a great pull over continental nations. Our shores are studded with excellent natural harbours. We have several rivers and arms of the sea leading into the heart of our island, which is so small that no place is at any great distance from the coast. A great part of England, lowland Scotland and Ireland, is so level, that there is no obstruction to communication by roads, canals and railways. Our climate compels us to strenuous exertion; we may work all day in it all the year over; there is little temptation to bask lazily in the sun, and leave our business to go to the dogs, as is the case with countries in a more southerly latitude; although some of us would work none the less cheerfully if we saw more of the sun than we do. We have enough rain for all purposes in all parts of our islands; in some places, more than we know what to do with. I have already pointed out the great advantage to the cotton and woollen spinning industry, which arises from the moisture of Lancashire and Yorkshire. The mixture of races which go to form the British nation has given rise to a stock well adapted to take advantage of the exceptional geographical advantages of their island home. The sea-faring propensity manifested itself at a remote period, and has gone on growing in strength ever since; we are still the greatest carriers of the world; with that of the Empire beyond the seas half the merchant shipping of the world is British.

Like Venice of old, we are admirably situated as a distributing centre; a considerable proportion of the raw material which we bring from Asia, Africa, Australia, America, is distributed among the nations of the European continent.

But with all our geographical advantages, had we not possessed certain resources within our own islands, we might never have been able fully to avail ourselves of these advantages. Agriculture and stock-raising are no doubt important British industries; in England and the lowlands of Scotland the country is admirably adapted for such operations. But had we been nothing more than an agricultural nation, had the British yeoman farmer really been the typical John Bull, it is to be feared we should have remained far behind in the race of nations. A purely agricultural country can never support a very dense population, and in so small a country as ours could never have much surplus capital for great enterprises, nor surplus inhabitants for purposes of colonization. Our coal and our iron, we may say for the hundredth time, have to a great extent been the making of us, and have enabled us to avail ourselves of our geographical advantages. Though agricultural products, wheat and other cereals, animals and animal food, figure largely in our imports, they are almost nowhere in our exports. We have to import most of our food, and if we were fools enough to let our ports be blockaded, we should assuredly be starved out in case of war. We could never, it is obvious, have risen to our present position on the cultivated products of our soil. With the coal, itself a great export, we have been able to manufacture iron for ourselves and for export to other countries; have been able to rear manufactories to turn to profitable account the raw materials, the cotton and the wool and the other textiles which our ships bring so plentifully to our shores. We have been able with our coal and our iron, infinitely more valuable than all the gold mines of the world, to build our ships, our railways, our machinery; to become, in short, a great manufacturing as well as a great carrying nation, and to nurture a succession of inventors to devise fresh methods of making the most of our exceptional advantages. All this manufacturing activity, moreover, encouraged a rapid increase of population, an increase so great in course of time, that, busy as we were, there was not work for all, and thousands swarmed off from the central hive to found Britains elsewhere, and so to lay the foundation of that Empire beyond the seas which has reached such enormous dimensions at the present day.

There are other points in connection with our position as a commercial nation which would have to be considered in detail in an exhaustive account of the commercial geography of the United Kingdom. But for the present it is impossible to do more than touch briefly on some of the more important of them.

There is, for example, the thorny subject of Free Trade. We have here practically no impediments to the importation of commodities from every part of the world. We have no protective duties, and what customs are levied are solely for revenue purposes. Whether or not this is a commercial advantage, it would not be appropriate to discuss here; but there can be no doubt that the value of our trade has increased in proportion as duties were lowered or abolished. Then there are such questions as the limitation of the hours of labour, high wages, strikes, trades unions, and so on, all of which might be ultimately traced as arising, to some extent at least, from the inter-action between ourselves and our geographical surroundings. And of no inconsiderable importance, commercially as well as politically, are the two great factors of religion and race. These and other lines of investigation it would be of interest to work out; and some of the factors, it might be found, rather handicap us in the growing competition with other nations.

But our geographical position is not altogether devoid of disadvantages, and these threaten to increase. The rapid growth of our knowledge of all parts of the world; the bewildering spread of means of communication of all kinds; the construction of harbours at all points of advantage; the opening-up of new trade-routes, and the construction of short cuts, are giving to other nations advantages of which hitherto we have had almost the monopoly. The opening of the Suez Canal has restored to the Mediterranean much of its old importance as a trade-route. Now this threatens to affect our position as the great distributing centre for Europe. Italy, Austria, France, and even Germany can now get commodities direct through the Mediterranean ports, which formerly reached them through this country. Thus the wool that comes from Australia, the coffee and tea and wheat that come from the East, might for the continental supply be landed at Marseilles or Trieste, and thence forwarded over the Continent by railway, instead of being first brought to London or Liverpool, and thence shipped across the North Sea. Moreover, though we are still a very long way ahead, the Merchant Navy of other countries, especially of Germany, is growing, and German traders are learning to use their own ships, instead of resorting to ours. Still trade, like other things, is slow to move from old channels, and if we are careful to guide our enterprises with knowledge, we may be able to hold our own against all competitors. It is a curious fact that very large quantities of fruit imported into this country from the countries round the Levant, are exported from England by the French Government for the use of the French army, although one would think that it would be much cheaper to import it direct through the Mediterranean port of Marseilles. Again, we still re-export large quantities of coffee, raw cotton, foreign leather goods, jute, tin, rice, tea, and wool. All these things are of foreign origin. Now while there are fluctuations from various causes, there does not seem to be any real falling-off of this important section of our trade, which forms one-fifth of our total export trade.

The total value of our trade has grown enormously within the past 50 years. In 1860, imports and exports together amounted to 365 millions sterling; in 1906 their value was over 1,000 millions sterling. Our imports, 50 years ago, were valued at 210 millions; now they are 607 millions; our exports, 50 years ago, were 165 millions; now they are 460 millions. But while the bulk of trade has increased, its relative value has diminished. Thus, in 1860, for every register ton of shipping which conveyed our imports, the value was over £20; now the value is only about £11 per ton of shipping. The value per ton of shipping of exports in 1860 was £16; now it is only about £9. Thus it takes a good deal more work to produce the same result than it did 50 years ago. That is, no doubt, partly due to the growing competition, partly, no doubt, also, because by means of new inventions and improvements in various ways, as well as the opening-up of new trade-routes, the discovery of new sources of supply for much-used commodities, we are able to work more cheaply than we could do in past years. About 40 per cent. of our imports consist of food products; and about 35 per cent. of raw materials of various kinds to be used directly or indirectly for manufacturing purposes, partly for our own consumption, but largely also for export in a manufactured state. Over 50 per cent. of the raw materail consists mainly of raw cotton and raw wool, which are manufactured into textile materials to be exported to all parts of the world. How very important this textile industry is, may be seen from the fact that nearly one-half of our exports of home-produce consist of fabrics of raw materials in various stages of manufacture. Cotton manufactures and yarn alone amount to somewhat less than one-third of the total exports, while metals in various stages of manufacture (including machinery) amount to somewhat less than one-fourth. Our great raw export, coal, forms only about a twelfth part of our exports of home-produce. Something like 5 million people, men, women, and children, are dependent on the industries connected with cotton, wool and linen. A century ago the value of the total manufactures from these articles was 20 millions sterling; now it was 200 millions sterling. One other point before we leave the Mother Country. Of the total trade of the United Kingdom, 90 per cent. falls to the share of England and Wales, 8 per cent. to Scotland, and only 2 per cent. to Ireland, which has practically neither coal nor iron, and no manufactures to speak of.

Now, as to the rest of the empire. The relative importance of the Mother Country, as far as size and population are concerned, compared with the rest of the empire, may be seen from the fact that, of the 11½ million square miles, only 121,000 belong to the United Kingdom, *i.e.*, in size, the Mother Country is only one ninety-fifth part of the whole empire. Her population to-day is 43½ millions, or just about one-ninth part of the whole of His Majesty's subjects. The total trade of the empire may be valued, imports and exports, at about 2,000 millions sterling, and of this the share of the Mother Country is about 60 per cent., leaving 40 per cent. to the vast remainder of the empire.

But then let us remember that the trade of the Mother Country has been the growth of, say, a thousand years; while the Colonial empire only began to take its rise about 270 years ago. Thirty-five years ago, the total trade, so far as value goes, of the Mother Country was about 670 millions as compared with about 1,000 millions now, showing a growth of some 50 per cent., while in the same period the trade of the Colonies and India has increased by 230 per cent., from about 290 millions to 800 millions, that is, it has nearly trebled.

Let us now see what is the geographical distribution of the empire beyond the seas, and how far the commerce of its various parts is influenced thereby. Colonies may be divided into two categories:—first, what the French call Colonies of Exploitation—that is, colonies which can only be worked by the native inhabitants, or by the labour of people adapted to tropical climates, under the superintendence of a few white men; such colonies are, as a rule, situated within or near the tropics. Second, Colonies of Settlement, that is, colonies, the geographical conditions of which are adapted to a population drawn from the peoples of Europe, and from our point of view, of Central and Northern Europe. These colonies, as a rule, are within the temperate regions of the globe. Now, serious practical mistakes have been made by inattention to this distinction, and stupid political blunders by statesmen ignorant of geography, in estimating the real value of the Colonial growth of the great Colonising states. With respect to this important distinction, then, how is the British Empire situated? We have already referred to the position of the Mother Conntry. Our possessions in the European seas, Gibraltar and Malta, need hardly be reckoned, as they are not colonies—strictly speaking—but only stations of vast importance, from an imperial and strategical, and, therefore, from a commercial standpoint.

True, Malta has an enormous apparent trade for its size, something like 15 millions sterling, imports and exports; but it is almost entirely a transit trade, and is a striking proof of the commercial value of a British port in such a situation. Of our great Asiatic empire, considerably less than one-half, including Indian Native States and Burma, is actually within the tropics, though outside of that the climatic conditions are such as to render continued active labour by white men trying. It may therefore be assumed that the whole of our possessions in Asia—Aden, India, Burma, and we may say, virtually, Baluchistan, the Straits Settlements and the extensive Native States dependent on them, Hong Kong, British Borneo—are all of them Colonies of Exploitation. Of course, India is not generally spoken of as a colony; but for our purpose it may be treated as such. Ceylon and Mauritius must be classed with India.

As for Africa, the whole of Cape Colony proper with Natal, the Orange River Colony, and most of the Transvaal are well outside of the Tropic of Capricorn. They lie about the same latitude south as Algeria and Spain do north. But our South African possessions extend far beyond the Zambezi, and probably cover something like 1,300,000 square miles. As much of this is of a plateau character, a large proportion of it, so far as climate is concerned, might very well be settled by Europeans. In the low-lying northern districts, of course, the climate is not favourable. At the same time, both in Natal and the Cape it has been found necessary to import, for certain purposes, Malay and Indian labour, and the natives themselves are largely utilised for the development of the country, though difficulties in connection with native labour led to the importation of Chinese into the Transvaal, an experiment not entirely successful. Altogether in British South Africa there may be over a million whites, and six times that number of natives. On the whole, the region south of the Zambezi may be classified as a Colony of Settlement, in a part of which white labour is quite practicable, and which is capable in the future of supporting a very large white population. Indeed, if coloured labour of any kind were unattainable, it would probably be found that, so far as climate goes, there was no obstacle to white labour; but the white man, as a rule, will never do spade and pick work alongside of his coloured brother.

All our other African possessions are undoubtedly tropical; colonies of the exploitation type,—British East Africa, including Uganda, Nyasaland, the

Niger Region, and the West Coast Colonies, not to mention the Anglo-Egyptian Sudan.

In America there are the great Dominion of Canada and the Colony of Newfoundland, so admirably adapted to European colonization—although a considerable area, it must be admitted, is quite uninhabitable permanently, owing to the Arctic rigour of the climate. Passing over our old colony, which we lost through the perversity of our ancestors, we come to the British gems scattered over the West Indies. Here again the climate is unmistakably tropical, as is the case in British Honduras and British Guiana, though in the islands at least it is salubrious enough to suit Europeans. But these belong to the exploitation class, their resources must be developed by the negro and half-caste population remaining from the old days of slavery, unless it be found in time that our present conception as to white labour in the tropics is a delusion. In the Atlantic we have scattered patches like Bermuda, St. Helena, Ascension, the Falkland Islands, all, except the last, valuable mainly as stations. The Falklands have an industrious white population.

Then we come to the great Australasian group, which, with the exception of New Zealand, have recently become federated in one Commonwealth under His Majesty, as Canada, many thousand miles to the north-east, has done. Notwithstanding the lamentable proportion of desert on the mainland of Australia, and the fact that more than one-third is within the tropics, still this great group, which includes New Zealand (the Britain of the south) and Tasmania, must be regarded as colonies of settlement, and will in future have a large white population. New Guinea is, of course, uncompromisingly tropical. So also is Fiji, tempered though it is by the healthy breezes of the Pacific. The many islets scattered over the Pacific are valuable mainly as coaling stations and watering places; their direct commercial value can never be great.

Now let us see where we are. Taking a survey of our Empire beyond the seas from this special point of view, I estimate that the tropical area (including India) amounts to something like 3,700,000 square miles, sustaining a total population of some 330,000,000, of which only about 400,000 are whites; that is, only about one in a thousand of the total population, the remainder being mostly natives, with a few half-castes and imported labourers. On the other hand, on the remaining 7,000,000 square miles of our over-sea Empire, we have a population of something like 17,000,000, of whom only about 3,800,000 are not white, and the bulk of the latter are in South Africa, which, as I have pointed out, is a mixed colony. The total land-area of the globe within the tropics may be estimated at 19,200,000 square miles.

Thus we are on the whole fortunate in our Colonial Empire, much more fortunate than France or Germany, Portugal or Spain, which, except France, have very little beyond the tropics. The proportions of our Colonial Empire are well adapted to our wants. We have every year a surplus population that cannot make a decent living in this overcrowded country; they have only to go to another corner of our great empire and they will find all they want. And here I may say that, from the commercial as from several other important points of view, I reckon the United States as an integral part, if not of the British Empire, at least of the dominion of the English-speaking people. No Englishman feels from home in the United States, with which we do far more trade than with any other country. But of this more anon. The geographical conditions of the bulk of the Empire are such as to adapt it to a British-born population, and to settlement by those continental peoples most nearly allied to us, who are as migratory in character as ourselves. Then, from the trade point of view, these 17 millions are excellent customers, and many things that they are able to produce in their own countries, food products, metals, wool, and raw cotton, are what we most require at home. On the other hand, from the tropical and sub-tropical portions of the Empire, the resources of which, according to existing conceptions, must be developed by the natives under white superintendence, other wants are to a fair extent supplied. Let us see more precisely what relation this trade bears to the geographical conditions of the different groups.

The total trade of the Empire, we have seen, may be estimated at about 2,000 millions sterling annually, about one-half of the trade of all other civilized countries put together. Of the 2,000 millions, 800 millions must be credited to that portion of the Empire beyond our shores. Of these 800 millions, about 300 millions belong to the 7 million odd square miles of what we call colonies of settlement, with their population of 17 millions, mostly whites. The remaining 500 millions sterling must be credited to the tropical and sub-tropical possessions, which cover only about 4,500,000 square miles, but have a population of some 350 millions, among whom is only a sprinkling of whites. In the latter case, the total trade is just about 30s. per head; in the former £18 per head.

That, of course, is a rough way of dealing with the subject. When we come to look more closely into it, we are met with some very significant facts. We find that of the 500 millions of trade which we have allotted to tropical possessions, about 320 millions belong to our great Indian Empire alone. But remember that this great trade is divided among a population of some 300 millions, living on an area of 1,766,000 square miles. India stands in a unique position in our Empire. It is a striking instance of the aphorism, that with us the flag follows the trade, and of the success of chartered companies in developing the resources of a country that cannot be colonized by white men. It is now over 300 years since the first East Indian Company received its charter. In 1693 Madras was founded, though there had been English factories and agencies at other places before then. Our great rivals at that time, and at times our successful rivals, were the Dutch. In 1686 Calcutta was founded, a factory having been established further up the river at Hugli, some years before. The geographical situation of Calcutta, at the entrance of the great river higdway of the Ganges, leading up to the richest cities of India, naturally determined it as the capital of the great Empire which, through years of toil and fighting, has been built up on the ruins of previous empires, raised by conquerors who came from the north-west, and whose capital, therefore, was naturally situated at the other end of the Ganges, at Delhi. It is only about 48 years ago that this most important section of the British Empire ceased to be ruled by a trading company, and was transferred to the Crown of England; and 31 years ago Her late Majesty assumed the title of Empress of India.

When we first entered India, we had to deal not with a barbarous people like the natives of Central Africa, or the Indians of North America, but with a people whose civilization was older than our own, and some of whose ruling stock, at least, was akin to ourselves. Of course, we cannot now trace the growth of India, the development of its resources, and the consequent increase of its trade. The great bulk of the people are industrious agriculturists, diligently cultivating their little plots of land. The geography of India is remarkable, but simple. On the north we have the mighty chain of the Himalayas, spreading out northwards into the great table-land of Central Asia, and sloping gradually southwards into the broad and rich plain watered by the Ganges and Indus, with their numerous tributaries and feeders, which obtain their supplies from the abundant rain and snow-fall of the mountains. This rich river plain, often flooded with the fertilizing waters, supports nearly 200 million people. Rising to the south of this river region are the Vindhya Hills, which of old formed a bulwark to the table-land that covers most of the south, and is usually known as the Deccan. These Vindhya Hills, with their dense brush and forest, formed of old an effective barrier to the conqueror from the north, and prevented the welding of India into one great nation. We, with our railways and our roads, and our engineering, have overcome these comparatively puny barriers, and practically sway the whole country from the Himalayas to Cape Comorin. The climatic and geographical conditions render the small culture which prevails among the peasantry of India peculiarly suited to the country. Irrigation and manuring are carried out in the most minute and painstaking way, whenever necessary. India has become one of the great wheat-producing countries of the world; nearly the whole cultivated area of the North-Western Provinces, and a large proportion of the Punjaub, are devoted to this culture. Indian wheats, of which there are many varieties, are peculiar, and the kinds best adapted to the country have been ascertained after many experiments. Rice is largely grown in Bengal, and indeed wherever moisture is sufficiently abundant, and even in the Himalayas when irrigation is possible. The rapid spread of railways in India in recent years, combined with the extensive system of river communications, has rendered it possible to export both wheat and rice with profitable results; so that in 1905-6 the value of these commodities exported was 18 millions sterling, or one-sixth of the total export of merchandise. Even more important, however, than wheat or rice, is raw cotton, of which 15 million pounds' worth, mostly grown in Bengal, was exported in 1905-6, besides about 10 millions worth of manufactured cotton. Next comes jute, raw and manufactured, 20 millions sterling exported. There are, of course, a great many other articles produced in India, the export of which makes up the 118 millions that represent this branch of its trade. An industry of growing importance in India is tea-planting, which was introduced only about 70 years ago. Many experiments were made, and many mistakes committed, before the conditions of planting were adapted to the requirements of Assam and the other hill valleys, where the industry is now carried on with growing success.

India contributes very considerably to the trade of the Mother Country. About 68 per cent. of her imports of merchandise come from us, while of her own produce about 26 per cent. go to the United Kingdom. Of cotton manufactures alone, India takes from us about 22 million pounds' worth annually. All this immense Empire is ruled by a handful of British officials. It can hardly be called a colony of exploitation, because the people work for themselves and for their own hands, assured of peace and protection, and the fruits of their own industry, under our firm and just rule. Those

English who do engage in industries are mostly merchants, tea planters, indigo planters, and manufacturers; while many rich natives are engaged in similar occupations. Thus India is unique among our possessions. It was a prize worth fighting for with France, and, as Professor Seeley has pointed out, the real aim of Napoleon, in his great wars with us, was not so much for supremacy in Europe, as for supremacy in India and elsewhere beyond the seas, knowing well as he did that in the future, power and greatness, political and commercial supremacy, would belong to the peoples who could spread themselves most widely over the face of the earth.

India, therefore, must be put aside in a special category. There is no labour difficulty to contend with, as there is in most of our other tropical possessions; on the contrary, Indian coolies are in great demand as labourers all over the tropics.

Ceylon, as a colony, while it and its people have some things in common with, differs in not a few respects from, India. It is the largest of what are known as our Crown Colonies; that is, those colonies the government of which is carried on entirely or mainly by officials appointed by the Crown. The climate, especially on the plateaux and hills, is superb, though the European population is small, and mainly occupied in directing the labour of the natives. Much of the country is as yet undeveloped, only about an eighth is under cultivation; and a considerable proportion of that consists of large tea, cocoa-nut, cinnamon, cacao, tobacco, and rubber and cinchona estates.

Coffee, once the great culture plant, is rapidly dying out, and tea and rubber taking its place. Ceylon is a good example of the advantage of a tropical colony having more than one culture to depend upon. Her plumbago mines are of great importance. The progress of the tea industry in Ceylon has been most remarkable; in 1878 only 1,000 lbs. weight were exported; in 1905 the quantity exported reached over 170 million lbs., a striking instance of the success which attends intelligent efforts in colonists to adapt themselves to the conditions of their colony. The total trade of Ceylon amounts to about 15 millions sterling, and our share of that is over 5½ millions.

Hong-Kong and the Straits Settlements are types of colonies of a peculiar class. Hong-Kong is a miniature island off the coast of China, of only 30 square miles (exclusive of the 380 square miles leased from China on the mainland), with a total European population of 10,000 (including a large military and naval contingent, for it is an important strategical position), and an Asiatic population of 360,000. Its trade amounts to about 6 millions sterling, and of that 4 millions is with Great Britain. But it is mostly a transit trade; that is, goods are imported from China and elsewhere, only to be re-exported. Something like 8,000 vessels, besides 17,000 junks, enter its port annually. But this is nothing to the Straits Settlements, the chief port of which is so admirably situated as a centre for the receipt and distribution of the produce from a wide and productive region. It is on the great highway of all the traffic between Eastern Asia, and the west, and thus we find, although the whole territory does not exceed 1,500 square miles, and the population over half-a-million, the trade of the Colony amounts to about 60 millions sterling annually. This is, of course, almost entirely a transit trade, and the direct share of England is small, not more than 11 millions; another 30 millions being credited to the British Colonies. But the Straits Settlements are developing into something more than a halfway house for the trade between the east and the west. Behind the Settlements, in the long Malay Peninsula, are a number of Native States like Johore and Perak, which formerly were in a continual state of disturbance. These have been gradually brought under the influence of the Settlements, and are now British Protectorates, to use a word which indicates one of the first stages towards annexation. British Residents live at the courts of the Native Chiefs or Princes, and under their guidance the resources of these neglected and once disorderly states, rich in minerals, with a soil capable of being put to excellent uses, are being gradually developed, mainly by British capital.

Borneo is an island of the true tropical type; the equator crosses it. The northern part of that island, 31,000 square miles, has for some years been a British dependency, and is being exploited by one of those chartered companies through which, in recent years, we have been greatly extending our Empire. Much of its area is covered with the typical tropical forest, and its natives are not much more advanced in civilisation than those of Central Africa. The native products are of some value, and are worked and exported. But the company, which administers the government of the protectorate, wisely recognise that the mere collection of native produce will never lead to much. They themselves are not traders, but only landlords; they have no interest therefore in monopolising trade, but, on the contrary, every inducement to attract as many traders as possible. The land is being well taken up, and already considerable areas have been planted with tobacco, coffee, and other crops, and the prospects of the colony are promising; though as yet the total trade does not exceed £900,000, treble what it was 20 years ago.

Bordering the British North Borneo Company's territory in the south-west is another stretch of country which we have, is administered by a British Resident, the Sultanate of Brunei and the district of Sarawak, the two covering some 46,000 square miles, and with mineral resources, including coal, of which much may be made in the future. Lying off the coast of Borneo is the tiny island of Labuan. On the other side of Asia, on the S.W. corner of Arabia, is our territory of Aden, which is simply a great fortress, of the highest importance as a safeguard to our commercial interests along one of the most important trade-routes in the world. How important that trade-route is for us you may realise from the fact that three-fourths of the trade of India comes and goes through the Suez Canal.

All these Asiatic portions of our Empire are of the greatest commercial value to us; partly from their own productiveness, partly from their geographical position along one of the greatest trade-routes of the world, which not only leads to and from India, but forms the great highway to Eastern Asia, and to Australia, as well as to the rich Dutch possessions in Java and Sumatra. The total value of the annual trade of these possessions may be set down approximately as equal to about 430 millions sterling, of which the share of the Mother Country may be estimated at some 115 millions; that is to say, about one-ninth of our total trade—about one-third of the trade of the United Kingdom with her possessions abroad.

With a series of giant strides we might cross over the Pacific, from British North Borneo to British Honduras, without ever taking our feet off British territory. It was in New Guinea, now known as the Territory of Papua, as it was in Africa; until Germany came into the field we did not appreciate its value, although we might, years ago, have had the whole of the biggest island in the world (leaving out the Australian Continent) as part of the Empire. As it is, we have been fortunate enough to secure a portion of the S.E. corner, about 90,000 square miles, lying opposite the north of Australia. The more we know of the geography of this possession and its neighbouring islands, the more promising do they seem from a commercial point of view. In the interior is a magnificent range of mountains, rising to a height of 13,000 feet, where we find snow and ice. The slopes and upland valleys of these mountains may in the future become of great value for the development of the country, rendering it possible for Europeans to make it their home, at least for a time. But it is essentially a tropical colony, and must be developed by native labour. The natives, Papuans for the most part, are a fine race of savages, but it remains to be seen whether they can be trained to steady labour, or whether labourers will have to be introduced from the outside. There are minerals in the country, and its natural resources are of some value; but there is no doubt that much use could be made of it for various tropical and sub-tropical cultures. Now that it is directly under the Federal Government of Australia, we may expect to see energetic measures taken for the development of its resources.

In the Pacific itself, our most important possession is Fiji, peopled by a fine race of cannibals, who, under our rule, have become comparatively civilized and christianized. By means of roads and tramways the islands have been opened up to industry, though here, as elsewhere in the tropics, the labour difficulty has been a great obstacle to progress. Such plants as sugar, tea, bananas, cocoa-nuts, maize, rice, tobacco, have been introduced, and although it may be found that the conditions are not adapted to all of them, still there is great hope for the future, if only an adequate supply of labour and capital can be obtained.

If we look at the map of the Pacific we shall see many red specks upon its bosom, indicating scattered patches of the Empire. In themselves these lovely islands may be of little value; copra (*i.e.*, the dried kernel of the coca-nut) and guano yield something to British commerce; but the great importance of these islets is as stepping stones between Vancouver Island in the Canadian Dominion, and Australia and New Zealand. A cable now unites these important portions of the Empire, and our island possessions have undoubtedly proved of great utility in connection therewith. There is a regular steamer route between Australia and San Francisco, and indirectly to Vancouver.

Crossing Central America we reach British Honduras and our scattered West India possessions, to which I have already referred. The total area of these islands is 12,000 square miles, and the total population a million and a half, of whom about 60,000 are Europeans, the latter mainly officials and superintendents of native labour. The natives, mostly descendants of the old Negro slaves, do not take very kindly to work, so that in some of the islands much of the work is done by coolies from India. The prosperity of these islands received a severe check in recent years, from the mistake by planters of putting all their eggs into one basket.

Much has been heard of the recent sugar crisis; how our great sugar-growing colonies—including Mauritius, the geographical conditions of which are somewhat analogous to those of the West Indies—have been handicapped by the bounty-propped sugars of Germany and France. But in the end the result will be for the good of these colonies. It has compelled the colonists to learn more about the geography of these beautiful islands, and to investigate their industrial capabilities, with the result that in the future they will not be entirely dependent on their sugar. In Jamaica, Trinidad, Bahamas, and the smaller islands, such cultures as cocoa, coffee, cinchona, bananas, fibres, have been experimented with, and that with encouraging results; while fruit-growing is assuming important dimensions, a profitable market for the produce being found in the neighbouring United States. Here, as in Fiji, labour and capital are both wanted, and for both there is ample scope. What the native can do when he is compelled to work is seen in the island of Barbadoes, where the population is so crowded that the people must either work or starve; the result is that the trade of that tiny island is nearly equal to that of Jamaica. The total trade of the West India Islands amounts to something like 14 millions, nearly equal to that of all Central Africa, about one-third of it with the Mother Country. Though in the strict sense these islands may not be colonizable by Europeans, there is ample scope for English enterprise. The same may be said of the neighbouring Colony of British Guiana, nearly ten times the size of all the West Indies together, but with a total population, including aboriginal natives, of not more than 300,000, of whom a large proportion are Chinese, Indian coolies, West Indian natives, and Portuguese from Madeira, all introduced for the purposes of labour. The European population is over 16,000, of whom 2,000 are British. The interior of the colony is practically unoccupied. The total trade of the colony is about 3½ millions annually,—2 millions with the Mother Country.

Since the first edition of this work, great changes have taken place in British West Africa. The protectorates of the Colonies have been considerably extended in the interior; Lagos and the old Oil Rivers Colony have been united into the large colony of Southern Nigeria; Northern Nigeria has been transferred from the Royal Niger Company to the Government, and is now under direct Imperial administration.

I said so much about tropical Africa in a previous chapter that there is little need to do more than mention our colonies in West Africa—Gambia, Sierra Leone, the Gold Coast, Southern Nigeria and Northern Nigeria, altogether covering, with protectorates, about 454,000 square miles, with a population of about 30 millions, among whom there are only 1,400 Europeans. The entire trade of Gambia, Sierra Leone, the Gold Coast and Lagos, 20 years ago, was only a million and a-half annually, mostly with Great Britain; it is now over 4 millions. The trade of the whole of British West Africa amounts to about 11 millions. In all these territories, especially in Nigeria, there is undoubtedly a splendid region, capable of great commercial development, when once its geography is mastered, and the method of administration is more and more adapted to the conditions of the country and character of the people. The same may be said of the territory of British East Africa, on the other side of the Continent, including both Uganda and the British East Africa Protectorate, and Zanzibar. Like Northern Nigeria, British East Africa has been transferred from a chartered company to the Imperial Government. The total area of British East Africa is about 400,000 square miles, with a population of some 8 millions, including some 2,500 Europeans and Eurasians. A railway now leads from the coast to Uganda, steamers ply on Victoria Nyanza, and good roads lead westwards to the outlying territories. European settlers have taken up land, and though mistakes have been made, there is every reason to believe that the resources of the extensive territories are in a fair way of development. The combined annual trade of the whole of British East Africa, including Zanzibar, is over 3 millions. Mauritius must not be left out in our rapid survey; it does a trade of 4 millions annually, of which only a fraction, however, is with the Mother Country. Nearly all the labour in Mauritius is by Indian coolies; and, unlike other tropical colonies, the island is well opened up by means of roads and railways.

Leaving India, then, out of account, as in all respects unique, we may estimate the total trade of our tropical colonies at 200 millions; double what it was 20 years ago. If we take what we may call the productive tropical colonies, there is one striking feature present, and that is, their comparative stagnation; their trade does not increase at anything like the same ratio as do the more temperate portions of the Empire. The climate is not conducive to enterprise; labour is often difficult to obtain; and, therefore, capital is slow to flow into regions where it might probably give little return. In all, Nature is exuberant. In all of them, hard manual labour on the part of white men is supposed to be impracticable, and the development of the colonies is, therefore, largely dependent on native labour. In most of them, the natives (in the West Indies these are mostly descendants of former slaves) have an inherent objection to hard work, and, consequently, the white employers are compelled to import labour from India and China, and from among the natives of the Pacific Islands. Nearly all of them are subject—happily, as a rule, at long intervals—to terrible hurricanes, which may ruin the plantations, and sweep away the slow growth of many years' labour. Still the geographical conditions are entirely favourable to a much larger commercial development than these colonies have yet attained. As it is, their trade forms a substantial item in the trade of the Empire.

Now let us, as a contrast to these colonies, some of which have been in British keeping for a century or more, pass in brief survey the three great Colonies of Settlement—the practically independent Dominion of Canada, Australia, and South Africa. The Cape Colony has been ours for over 100 years; Canada for 160 years; and Australia for 120 years. Canada covers an area of 3½ million square miles; Australia, just a little less than 3 million square miles; to which might be added

130,000 odd square miles for New Zealand and Tasmania. The Cape proper has 207,000 square miles, and with its annexes, 277,000 square miles, but if we include the whole of British South Africa (comprising the Transvaal and Orange River Colony, recently incorporated in the Empire after a hard struggle), north and south of the Zambezi, the area is over 1,000,000 square miles. These are big figures, and without qualification they are misleading. In all three sections of the Empire deductions must be made for areas that are uncolonizable, so far as our present knowledge goes; though in recent years, much territory previously considered to belong to this category, has been found to be available for settlement and exploitation. A big slice of Canada stretches beyond the Arctic circle, and although men may hunt and fish there, they can never settle permanently. Again, the great peninsula of Labrador, partly belonging to Canada, and partly to Newfoundland, the oldest British colony, is much of it, owing to climate and other geographical conditions, unsuitable for permanent occupation by Europeans; though further exploitation has shown that it has resources worth developing. So it is also with much of the country round Hudson's Bay. But I have already drawn attention to the fact that the isothermal line, which marks an average temperature of 40°, takes a remarkable sweep from the mouth of the St. Lawrence, north-west, to about the 60th degree north latitude. Thus as we go westward in the

Canadian Dominion, the country becomes habitable further and further north, so that in British Columbia, including Vancouver Island and large areas of the North-West Territories, wheat and other cereals can be grown, cattle rearing is possible on a large scale, and there is ample room for millions of settlers. In short, in Manitoba and the north-west, the country is colonizable and capable of culture quite as far north as we find it to be in Europe. It is only within recent years, as geographical exploration has been carried out, and the capacities of the country ascertained, that we have formed some idea of the extent to which Canada is permanently habitable. While, therefore, the population is likely always to be densest in the Eastern provinces, towards the St. Lawrence, and in British Columbia, there is no reason why, in the future, much of the interior of the Canadian Dominion should not contain a fairly dense agricultural population. Moreover, this region is known to be rich in minerals and in petroleum, and, happily, both on the east in Nova Scotia, and on the west in British Columbia, coal exists, and is worked and even exported in considerable quantities; and certainly will be worked on a much larger scale in the future. While, therefore, it must be admitted that a considerable proportion of the Dominion of Canada can never be of much mercantile value, there is still ample room for industrial development, and for the settlement of a population at least twenty times that which at present occupies the territory.

Of course it would be absurd to compare Canada with the United States. They are about the same size, but the geographical conditions are entirely different. At present the total population of Canada is probably over 6 millions; in the States there are over 80 millions. But Canada is increasing steadily: immigration has recently taken great strides, and has reached 200,000 annually, and land in Manitoba and the North-West especially is being rapidly taken up. Until within quite recent years, only the eastern provinces were really occupied; the centre and west were given up to the trapper and hunter. The mineral resources of Canada have been referred to, and the output has greatly increased in recent years, but the Dominion has other natural resources of great present commercial value—its forests and fisheries. As in all new countries, there has been the most reckless destruction of forests; happily their value is now appreciated, and they may long continue to be a permanent source of natural wealth. Canada, it must be admitted, has not progressed commercially in anything like the same proportion as has the United States, nor even Australia; but that may be attributed to the fact that until 1867 there was no common Government, that away from the St. Lawrence there was only a scanty population, and internal communications were deficient. In recent years the trade of the Dominion has increased at a more rapid rate. Twenty years ago the total value of the Canadian trade was 26 millions sterling; in 1889 it was 43 millions; in 1906, 110 millions; of this about 50 millions may be set down as the value of the exports. The relative value of the various resources of Canada may be estimated from the fact, that of the total exports about 26 per cent. is derived from animals and their produce, which consists largely of horned cattle, horses and sheep, though dairy produce is also an important item. Next comes manufactures, contributing about 20 per cent. of the exports, followed by the produce of the mines with 8 per cent., and of agriculture with 12 per cent., and fisheries 5 per cent. The animal and manufactured exports have increased at a rapid rate, and as the country develops, these, as well as the agricultural and mining exports, are bound to increase to an enormous extent. Canada has made wonderful advance in the matter of communications; she has a splendid trade artery in the St. Lawrence (though it is frozen in winter) which leads right into the heart of the country; by means of canals, vessels of considerable size can reach the great system of lakes. A railway traverses the whole country from the Atlantic to the Pacific, the passes of the Rocky Mountains having been overcome by splendid feats of engineering. Branches have been thrown out from the main line north and south, and a new Trans-Canadian line is being constructed to the north of the Canadian-Pacific, so that in time the produce of the most remote districts will find easy, cheap and rapid carriage tc market, greatly to the encouragement of all industries. Moreover, the Canadian-Pacific has become one of the world's great highways. By its means Great Britain is brought 1,000 miles nearer to Japan and the East, and Australasia; and, for a variety of reasons, we cannot have too many routes connecting the scattered members of our Empire. The summer frosts at times play havoc with the crops. But the climate, though in the winter severe in the east and centre, is on the whole perfectly healthy, and, as has been stated, Canada has room for a population twenty times its present number. Only about one-thirtieth of the whole area is at present occupied. Of the occupied area, 64 million acres (100,000 square miles), about one-half is improved, and about two-thirds of that (20 million acres) under crops, the rest being pasture. The great bulk of Canada's trade is with the United States and Great Britain, the former, however, getting a larger share than the latter. Great Britain is the largest importer of Canadian produce, while the imports from the United States to Canada is between two and three times more than those from Great Britain. As a hindrance to trade with the Mother Country may be mentioned the high tariffs which Canada levies on imports; in this respect she makes only a slight distinction between us and foreign countries. More than half her revenue proper is derived from customs duties. Again, although the Indian natives are small in number, and nearly all civilized and settled, the population is not homogeneous, for about one-half is descended from the old French settlers, and keep very much to themselves, many of them being unable to speak English. This lack of homogeneity of the population is undoubtedly a hindrance to the development of the country. But take it all in all, Canada is a portion of the Empire with a great future before it, and is bound to increase rapidly in commercial importance.

It is now over a century since the first convict colony was founded on the site of the present city of Sydney, the capital of New South Wales, in Australia. At present, in the 3 million square miles of the Continent there are 4 millions of white inhabitants, or only 1⅓ inhabitants to the square mile. Yet Australia does an annual trade amounting to 114 millions sterling; about the same as Canada, but considerably more per head of the population. Until 1901, each of the Australian Colonies was quite independent of the other, and the total trade seemed much greater than it is now, because it was given as the sum of the trade of each colony, which consisted not only of the oversea trade, but of the trade between each Colony. Were this taken into account, both for Australia and Canada, the trade would seem much greater than is represented in the returns of the Commonwealth, and the same might be said of the Dominion of Canada as well as of India. In 1901, the separate colonies of Australia, together with Tasmania, combined into the Commonwealth, with a Governor-General, and a common administration in certain departments, while, as in the case of Canada, the separate colonies has each its own local administration, with its own local officials.

When it is considered that just about 70 years ago an odd shanty or two stood on the site of the fine city of Melbourne, it must be admitted this progress has been marvellous. I have already made reference to the climate of Australia, and have pointed out that its rainfall is its weak point. Owing to this cause, so far as we can see at present, nearly one-half of the Continent, *i.e.*, much of the region west of the central telegraph line, is unfit for occupation, or for being put to any industrial use, though further exploration has shewn that the country is not so bad as was at first thought. As a matter of fact, the great bulk of the population is concentrated in the south-east coast region, embracing the colonies of New South Wales and Victoria (one-seventh of the total area), and more recently in Central Queensland, and in the Central Coast region of Western Australia. It is in the south-east region however, that up till now most of the commerce has been concentrated. No doubt one reason for this is that from these colonies were obtained the enormous supplies of gold which have had so much to do with the making of Australia. Since the discovery of gold, 60 years ago, the value of that precious commodity obtained in Australia has been about 450 millions sterling. Now this is a magnificent capital on which to start a colony, and had Canada possessed an equally valuable resource, it might have been much further advanced than it is; it remains to be seen whether South Africa will put her mineral treasures to equally productive use. It was this gold that attracted to Australia thousands of rough and vigorous men, with the making of good colonists in them. When they had "made their piles," many of them stayed on, and bought land and took to farming and stock-raising; with the result that the value of the wool which has been exported from Australia during the last 60 years far exceeds the value of the gold itself. In Victoria and New South Wales, at least, the output of gold is every year decreasing, while the export of wool is rapidly increasing. But the gold has done its work well. It has not only brought colonists, but it has enabled the Commonwealth to build some 15,000 miles of railway, which have been of vast service in opening up the Continent to commerce.

I have already pointed out that a considerable section of the North of Australia is within the tropics, and as a matter of fact, in Queensland the difficulty of obtaining an adequate supply of labour for its sugar and cotton plantations is one of the great hindrances to its development. The native Australian, a somewhat low type of humanity, is doomed to extinction; it is sad, but it is inevitable. That Australia, as a whole, can ever become densely populated is most improbable. We have seen how rapidly the rainfall decreases away from the coast, and how many acres of grass it takes to maintain one sheep. In such regions the population must necessarily be thin. In the coast regions, on the south-east and west, great cities are growing up, and more will follow; but unless some immense manufacturing industries are founded on the Continent, it can never maintain a population proportionate to its area. But progress is being made in this direction under a high protective tariff, that goes far to exclude British and foreign manufactures; to this no one can object, as each country must be allowed to look after what it considers to be its own interest, and this is not the place to discuss the merits of Free Trade and Protection. Australia is nearly as large as Europe, and Europe has a population of some 350 millions, but then there is not much of it that is not inhabitable. Unless some means be devised of fertilizing the great desert area of Australia, it is difficult to see how its population can ever exceed one-third of that of Europe. Still it is impossible to predict what may happen. There is undoubtedly a great underground supply of water over Central Australia, and in some places it has been tapped with an encouraging success. Moreover, both Victoria and New South Wales have introduced elaborate systems of irrigation and storage of water, which may enable these colonies to extend their areas of culture, and therefore of settlement. South Australia, until recently extended right across the Continent, with an area of over 900,000 square miles, and a population of only 370,000. Quite recently it has been arranged that the Northern Territory shall be under the direct jurisdiction of the Federal Government. The million of square miles of West Australia are in the hands of only 262,000 people; but this is six times the population of 20 years ago, thanks mainly to the discovery of gold.

We may form some idea of the extent to which the agricultural capacities of Australia are developed, when we remember that less than the one hundred and fiftieth part (about 23 million acres) of the whole area is under cultivation, and of that about ten million acres are under crop, only about half of what has been thus utilised in Canada. On the other hand, of the eastern half of the Continent, it is estimated that about a third of it is under some kind of pastoral occupation.

Thus there is ample room, even when all deductions are made, for the expansion of the English-speaking race in Australia. Not only gold, but coal and iron, tin and copper, exist in many places, and already contribute to swell the exports. Sheep and cattle, wheat and maize, sugar and cotton, wines and tropical products, all of them are capable of much greater development than they have yet received. The magnificent wool of Australia is the result of a long series of experiments in selecting such breeds of sheep as are best adapted for the climate. Australasia (including New Zealand), contributes about 70 millions sterling annually (imports and exports) to the trade of the Mother Country; and when we think of it this is all found money, for had it not been for the enterprise of our explorers and colonists, it would not have existed, or might have been the perquisite of France or Germany. Australia, in its southern half, and the Dominion of New Zealand—the healthiest country in the world—are admirably adapted to the British constitution. Fortunately here the population is homogeneous, combining almost the same proportions of English, Scotch and Irish as are found in the Mother Country, with just such an infusion of the German strain as will confirm the predominance of the energetic and business element in the population. Of the 66 million acres of New Zealand, some 15 millions are under crops, grass, etc. There remains 16 million acres of corn land for disposal; there are still 20 millions acres under forest, and nine millions mountains, lakes, and barren country. As the white population is only about 930,000, there is still ample room for expansion. Here is none of the lack of rainfall and other drawbacks found in Australia; it is another England, with a superb climate. Wool and wheat, live stock of various kinds, coal and gold, are among the leading products, while manufactures are in a fair way of development. The Colony does a trade of about 35 millions sterling (more than double what it was 18 years ago), and of that 20 millions is with the Mother Country.

All these Australian Colonies, as is the case with Canada and the Cape, treat the Mother Country as a commercial enemy, and impose such duties on manufactured imports as seriously to hamper our operations. As has already been stated, we must not here discuss the wide subject of Free Trade and Protection, but the fact of these high tariffs must be referred to as an obstacle to free commercial intercourse.

There is less reason for me to enter upon the wide subject of South Africa, as I have already dealt with it to some extent. In recent years British suzerainty has extended far beyond the Cape Colony to the Zambezi, and still further. There are now quite a number of separate Colonies, which it is to be hoped will in time follow the example of Canada and Australia, and unite into one great federation. The Cape Colony proper has this in common with Australia, that, away from the coast there is a lamentable lack of water supply, and this has seriously hindered its industrial development. Its trade has greatly increased in recent years, largely owing to the development of the diamond mines and of the gold resources in the Transvaal; it now amounts to about 50 millions sterling, but of that, more than half the imports consists of gold and diamonds. New Zealand, though only half the area, and with comparatively little gold and no diamonds, does as good a trade as the Cape, exclusive of these. Of the total area, only about two-thirds has been disposed of, and there is but a small fraction under cultivation. But agriculture can never reach great dimensions in the Cape proper without extensive and expensive irrigation; sheep and cattle, wine, minerals (gold, coal, iron, copper) must be its great industrial hopes in the future, for the gold cannot last for ever. There is not only the lack of rain to retard the development of the Cape, there is a heterogeneous population. This now applies with still greater force if we include the Transvaal, the Orange River Colony, Natal, and Rhodesia. There is still a serious native question, but it is hoped that all the European population will combine to develop the permanent resources of the uncultured area under their control. The labour question in South Africa involves a racial question, but this is one which is likely in the near future to be not a local, but a great world problem. Of the Transvaal exports, it may be stated that 95 per cent. consists of gold and diamonds; the farming population only produce enough to supply themselves and the local demands.

Thus we see that whatever habitable parts of the earth were most available for European settlement, have fallen in the main to the lot of English-speaking peoples; and among them we must reckon the United States, which we cannot treat as a foreign country, and which does an annual trade of 600 millions sterling, 160 millions of it with the old Mother Country, which, in this matter, stands far ahead of all other countries. In commerce, as in some other things, blood counts for something. Whether our colonies remain attached to us, or whether the larger ones (which now manage their own affairs), may, like the United States, set up for themselves, the future alone can reveal. Whatever form our future relations with our Colonies may take, we ought, I think, in the interests of commerce, as much as for sentimental reasons, to stick together. The spread of our race on the face of the earth, the enterprise of our explorers and adventurers, have helped to give us predominance in the commercial, no less than in the political world. In one form or another the English language is the medium of communication for something like 500 millions of people, nearly one-third of the population of the earth;

and of those who try to forecast the future, some think it may yet become the universal language. When we remember that more than one-fourth of the whole trade of the United Kingdom is with the rest of the Empire, it is surely our interest to do all we consistently can to promote that commerce, to encourage the development of the Empire beyond the Seas, and the judicious extension of the British flag. As yet the great outlying sections of the Empire cannot do without us; without boasting, we may say we have the ships, and the men, and the money; and it is surely in the interest of our trade that our position in this respect should continue no less pre-eminent than it is. One means, among others, of enabling us to keep our place with so many powerful rivals in the field, is to acquire a full knowledge of the geographical conditions which bear on the interests of commerce. My object in this chapter has been to give such hints on the subject as will assist the student to work it out in detail for himself.

CHAPTER V.

SOME COMMON COMMODITIES.

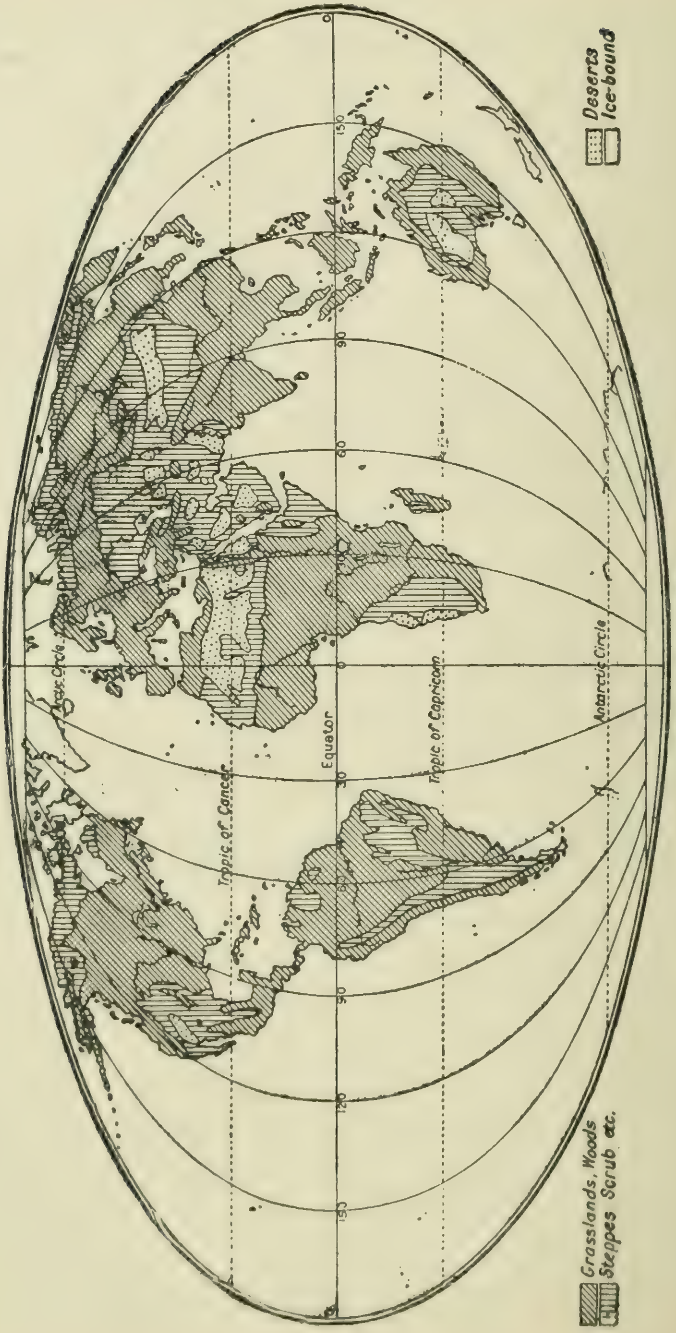
HITHERTO we have been looking at commerce from the basis of geography. We endeavoured to analyse the conception of geography, to ascertain the various factors with which it deals, and to show what bearings these have on the interests of industry and commerce. Next we dealt specially with Africa from this point of view; attempting to discover, from a consideration of its varied geography, what is its present value to commerce, and what are its prospects in the future from the commercial and Colonial standpoint. Then we investigated in a summary fashion the geographical conditions of the great sections that make up the British Empire, and endeavoured to form some estimate of their commercial value. Thus we have been approaching commerce from the geographical side. It may be advantageous now to reverse the process, by taking up some of the common commodities of commerce, and enquiring as to their actual and possible geographical distribution.

We might regard this earth as a great treasure-house, into which man has been turned loose, with no key wherewith to discover its treasures but his own necessities and his own inquisitiveness, backed by his trained intelligence. It would be of great interest to trace the growth of man's knowledge of those natural productions on which his existence depends, and with which commerce deals. How did man find out what vegetable productions are good for food and what ought to be avoided? No doubt by accident, as we call it, as has been the case with so many great discoveries; and no doubt many mistakes were made before primitive man learned to use aright the riches of his treasure-house. Some races, we know, have not even to this day got beyond the lowest stages of progress. In whatever way it is to be accounted for, such low types as the Australians and certain of the Aborigines of South America and Africa, have contented themselves with what Nature herself has provided on the surface of the earth. They toil not, neither do they spin, nor gather into barns, and therefore, we may say, they have not taken even the first step towards civilization. In Australia, before the advent of Europeans, there were neither cereals to cultivate, nor domestic animals to rear for food; the natives lived on the roots and fruits that grew spontaneously, and on the wild animals they could kill with their spears, their clubs and their boomerangs. They had thus no inducement to lead a settled life; had no towns nor villages, no stable places of habitation, and therefore not even the elements of civilization. Had they, like the races of the old world, the races of Europe and Asia, had access to cereal plants—to wheat and barley and rice—or had found in their great continent animals like the ox, the sheep, the goat, the horse, the camel, capable of domestication, and of yielding materials both for food and clothing, they might not have remained at the low stage in which they were found when the white man first set his fatal foot on their land. The gold, the coal, the iron and copper, and other treasures they seem never to have touched; or if they did, it was to no purpose.

The European has set himself to alter the face of the Australian Continent. The whole type of surface vegetation is being changed; European grasses are putting the native grasses to flight; the cereals of the old world are changing the face of great areas; the sheep and the ox are taking the place of the kangaroo and the wallaby; the camel is found as useful in the Australian desert as it is in the Sahara; the railway will in time render accessible every patch capable of culture. Food products are a great necessity for humanity, and one of the prime commodities of commerce; and these products our British colonists had to take to Australia with them, for on such products of this class as were native to the continent no civilized community could have developed. The total population of the 3 million square miles of Australia before the advent of Europeans probably did not exceed 250,000. Their whole lives were spent in seeking for food, and when that is the case, progress is impossible.

Thus the distribution of food products over the surface of the earth is of vast importance to civilization, and therefore to commerce. In all countries articles of food and clothing form, as a rule, by far the most important commodities of commerce, either in the way of imports or of exports. And among food products, cereals of various kinds hold the first place; they form the staff of life to the great bulk of humanity. Many millions of people live almost wholly on rice; to many millions more, corn, in various forms—it may be wheat or maize, barley, rye or oats—is a first necessity. Our own imports of grain and flour amount to one-eighth of our total imports, say, about 70 millions sterling; it takes all that, with what we grow ourselves, to keep us going—for our export of such commodities is now insignificant. We thus see the force of the statement that a prolonged blockade of our coast would go near to starving us.

The commercial geography of cereals, therefore, especially of wheat, is, so far as we and most other European nations are concerned, a subject of great practical importance. It would be interesting to work it out in detail, but I can only give a few hints which anyone may easily carry further for himself. All these cereals, as they are called, are simply cultivated grasses. The most valuable of them, at least from our standpoint, is wheat. It is impossible to say when man first began to cultivate this food-plant. No doubt he found it at first growing wild, and gradually learned to sow it for himself; but so old is it in its present form that many doubt if it now exists in a wild state at all. We may have some idea of its antiquity as a cultivated food-plant, when we are told that specimens of it have been found among the remains of the pile-dwellings that were built in the Swiss lakes, at a remote pre-historic period. We find wheat growing at nearly all latitudes, from 60° north to well within the tropics, from Norway to India. There are so many varieties that some can be found suitable for almost every habitable country; and one great recommendation of wheat is that it can do with a moderate supply of moisture. The great wheat region of our own country is in the middle and east of England, where the rainfall is lowest. There are hard wheats, suitable for sub-tropical countries like India, Egypt and South Australia, and soft wheats adapted to Central and Northern Europe. Some wheats may be sown in autumn, and allowed to be in the ground all the winter; while others do best by being sown in the spring, and come to rapid maturity in the short northern summer. The great thing is to have plenty of light and heat after the ear begins to fill. Below an average temperature of 45°, wheat will never come to maturity; so that, although we may grow it at 60° north, in North-Western Europe and North-Western America, at that latitude it forms a not very profitable culture; and rye and oats, both of them of a hardier nature, are much more suited to the conditions. Soil is, of course, an important factor in the growth of wheat and of other cereals; a moderately stiff soil is the best; though any soil, if it has the elements of fertility, gets enough of sunshine, and enough of moisture, will grow this all important cereal. Moisture, again, is of prime



THE WORLD: DISTRIBUTION OF SURFACE CONDITIONS.

importance, be it in the shape of rainfall or of irrigation. The quantity required depends, to some extent, on latitude ; in temperate latitudes, from 10 to 25 inches will yield good crops, though below a certain amount, as was shown in the case of Australia, the yield per acre diminishes. England, of course, grows considerable quantities of wheat, and with the average 25 inches of rain in the Eastern and Midland Counties, the yield per acre is, with that of New Zealand, the highest in the world—an average of 33 bushels. We used to grow enough, not only to supply our own wants, but to send it abroad as an export; but that is no longer the case, as has been pointed out already. Wheat is one of our principal imports.

Wheat is grown in every country of Europe, though in the northern countries it is of little importance ; it is spread all over the centre and south of Europe, though the only countries in which it is of importance as an export are Russia and Rumania. In Russia the black earth soil of the southern provinces is specially favourable to its cultivation ; but the sometimes scanty rainfall and backward methods of agriculture, render the yield per acre comparatively small, only about 8 bushels as compared with our 33. Then we find it flourishing in Northern Africa and Southern Africa, in Persia and India, and to some extent in Central Asia and China ; all over the United States and in Canada ; in Chile and the Argentine Republic, and even in Mexico ; and last of all in Australia. Thus this staple cereal can adapt itself to all varieties of geographical conditions. The peculiar conditions suited to the many varieties of wheat are fairly well known, so that in any new country there need be no difficulty in discovering what particular kind is adapted to the conditions, or whether it is wholly unsuited to wheat culture. So far as yield per acre goes, New Zealand, which resembles England in so many respects, stands practically level, even ahead of her in this; the average yield there may be taken as 33 bushels per acre, though it has reached even 38. But with the exception of Russia, the average European yield is considerably higher than it is in countries outside Europe, except New Zealand; and this may account for the fact that although in America, India, Australia, and the Cape, greater areas are covered with wheat than in Europe, the total annual yield of Europe is estimated to be much higher than all other countries together. The total crop of wheat in Europe averages about 1,500 million bushels annually; while that of all other countries may be about 1,300 million bushels. Thus the total yield of wheat in the world may be estimated at 2,800 million bushels per annum, or something more than 1¾ bushels per head of the world's population; though as a matter of fact, probably not more than a third or a fourth of the population of the earth use wheat as a regular article of diet.

Although wheat is cultivated in so many countries, it is only a few that have a considerable surplus for exportation after supplying the wants of their own populations. The great wheat-exporting countries of Europe are Russia and Rumania. Indeed, until comparatively recent years, Russia was the greatest wheat-exporting country in the world, and above all, our principal source of supply. But she has now formidable rivals, especially in the United States In 1906 about 24 per cent. of all the wheat we import we got from the United States (in addition to 70 per cent. of the flour imported); 20 per cent. from the Argentine, which has come to the front in recent years; 16 per cent. from Russia; 14 per cent. from India; 12 per cent. from Canada; 8 per cent. from Australia; and about 4 per cent. from Rumania. With improved methods of cultivation and irrigation, Russia might take her old place, for she has enormous areas of splendid soil, and in the low-lying parts of Southern Siberia she has a wheat-growing country quite equal to the Northern United States. But the Russian peasant farmer is far behind in many ways, and there are various other obstacles existing in Russia to the full development of its resources. There is plenty of river and canal communications, as well as railway routes and ports, both on the Black Sea and the Caspian; still, in the matter of communications, she can hardly be considered as on a level with either the United States or Argentina.

It is remarkable that wheat culture on an extensive scale is a comparatively recent industry in both the United States and India, as well as in the Argentine, Canada and Australia. The poor peasant farmers of the Punjab, the North-West Provinces, and Central India, use but little wheat themselves the spread of railways has made it a profitable culture for export, and there are innumerable varieties adapted to all the varied conditions which exist in India. The consequence is, that the export of wheat from India is 20 times what it was 30 years ago. But the spread of wheat culture in North America is even more surprising than in India. In India wheat may be said to be a native. In America, it was unknown until after the discovery of the Continent, 400 years ago. Now there are only three or four states of the United States in which, according to the latest returns, this crop is not grown. There are 75,000 square miles in the States (48 million acres) under wheat, and the yield for 1906 was 735 million bushels. We may form some idea of what this implies when we remember, that in the United Kingdom the area under wheat is under two million acres, and that the annual produce amounts to only 60 million bushels, about a twelfth of the produce of the United States. But then we get much more out of our acreage, in proportion, than is the case in the United States. The average yield there is only 14 bushels per acre; here it is 33 bushels. The conditions in the two countries are totally different. Here we have land that has been under culture for centuries; has to be highly manured, and otherwise cared for, involving considerable expenditure. Our farms here, and our fields, are comparatively small. In the States, the land, except in the New England States (which are greatly exhausted), is new; it has been lying fallow, so to speak, for untold ages, and requires little or no manuring. Land is cheap, and the farms often of enormous size; a single wheat-field may be miles in extent. While labour is dear, machinery is used to a very great extent in all farming operations, as it so easily adapts itself to the level conditions of the great prairies, so that expenses are really cut down to a minimum. The States are covered with a network of railways, converging on to the great main lines, leading to the Atlantic and Pacific. Thus the crops, even in the Western States, can be brought rapidly to the coast and shipped to Europe, much to the detriment of the English farmer. Seventy years ago the value of the wheat and corn export of the United States to Great Britain was only about £100,000; now it averages 8 millions sterling. It is no wonder that the value of land in England has gone down, and that farming is on the decline. But this cannot last. The United States are getting rapidly populated. The land will in time get exhausted, as crop after crop is taken off, year by year. It must either be allowed to lie fallow, or fertilisers must be made use of, and that will involve expenditure. Moreover, as the population increases there will be more food consumed in the States, and less will remain to export. In this way, in course of time, the balance may be adjusted, and English farming once more flourish. Meantime, the bread-eater profits by the competition.

Compared with the United States, the area under wheat in Canada is small, though it is increasing, and will increase, as railways spread and the western prairies are taken in; it is already about

5 million acres, about double what it was 15 years ago. There are not more than 35 million acres under crops of all kinds, about the same area as in the United Kingdom. Still wheat is an important export, amounting to about 8 millions sterling annually. One great drawback to wheat culture in Canada is what are known as summer frosts, which also do great damage sometimes in the Northern United States. These may occur in July or August, just when the crops are getting ready to be cut down, and may ruin the harvest. There are so many varieties of wheat in existence that it is possible that one may be found, or a fresh one created by crossing, that would adapt itself to this special condition; if so, it would be a boon for Canada. The yield per acre in Canada is about 32 per cent. higher than the average yield of the United States.

But in the Southern half of the American Continent, on the Pampas of the Argentine Republic and the plateau of Brazil, there is an enormous area of rich virgin soil. In the Argentine Republic wheat culture is rapidly assuming the proportions of an industry of the first importance; it can afford already to export to Great Britain alone over 8 millions sterling worth annually, besides 5 million pounds' worth of maize. As railways spread, more and more land will be taken in, and an increasing area be devoted to wheat. The only other country where the culture of wheat assumes dimensions large enough to become of importance as an export, is South Australia. Two-thirds of the cultivated land in that colony, say about 2 million acres, are under this crop; the total area under wheat in the whole of Australia is about 4 million acres. But the conditions in South Australia, as was shown in a previous chapter, are of the most unstable kind. Wheat can be grown to profit in a new country with a wonderfully small amount of moisture; but in South Australia the rain may fail entirely in some seasons, and the harvest be ruined. So variable is the rainfall that the average yield is only 7 bushels an acre; but the quality of the wheat is very high, that it may reach 12 bushels. Sometimes the crop is so plentiful that a million and-a-half pounds worth can be sent to this country; again, the export to this country may amount to only £70,000.

Such are some of the conditions which prevail in the great wheat-producing countries of the world. The practical man, the merchant whose business it is to import wheat, will make himself acquainted with these conditions in minute detail, and with all other conditions that affect the prosperity of his business. Different types of wheat yield different qualities of flour, suited for different purposes and for different markets. Wheat is now often imported in the form of flour, and this flour is made under very diverse conditions in different countries, depending to some extent on the character and habits of the people, the nature of their machinery, the mode of conveyance, the humidity or dryness of the atmosphere, and other circumstances. The mode of conveyance is of great practical importance. Frequent change from one mode of carriage to another cannot be good for the quality of the wheat, and, moreover, adds to the expense. These are all matters with which the actual importer will make himself acquainted; and often he can best do that, not entirely from books, but by actually engaging in the business, in other words, by apprenticeship, which ought to be combined with all forms of technical education. What is true of wheat is true of all other cereals, and indeed of all commercial commodities.

I have dwelt at some length on the geographical distribution of wheat culture, and on the conditions which affect it as a commercial commodity, because for British commerce it is of the first importance. But over a great part of Central and Northern Europe there are other cereals which are of even more importance to the bulk of the population, and which both there and in other countries are of much commercial value. In the British Isles, barley occupies quite as great an area as wheat, and oats a much greater area. Barley and oats, as well as rye, can be grown much further north than wheat, and so we find the two former grown all over Scotland and Scandinavia, while rye is the staple bread material over a great area of Central Europe and Russia. Even in India we find barley grown to a considerable extent, while in the United States over 50,000 square miles are under oats, and 10,000 under barley, about treble what it was 20 years ago, and about one-third of that under rye.

There is one other cereal crop of temperate and sub-tropical regions which has a peculiar and interesting history; it is one of the few gifts which the New World has given to the Old. While Europe may be said in a sense to have been bodily conveyed to America, the latter has given to the Old World but few commodities of commercial importance; among these are tobacco, the potato, and maize or Indian corn. Maize is found cultivated in many parts of Central Africa, for example, where the white man has only penetrated within the last year or two; it yields the mealies of the Kaffir, and the corn which the women of Central Africa daily pound in their mortars. As for tobacco, it is now cultivated all across the Continent. Of course these articles can only have entered Africa since the discovery of America; they reached the coast through European agency, and have gradually spread into the interior.

But as to maize—corn as the Americans call it, Indian corn as we call it here—it covers a greater area in the States than all the other cereals together, about 170,000 square miles. It does not grow well, on the average, much beyond 42 degrees north latitude, though on the other hand it is found all over the tropics, and has spread not only to Africa, but to Southern Europe and Asia, and even Australia. The yield of maize is four times the yield of wheat in the United States, but it is much more largely consumed in the States than wheat, so that the export of maize is just a fraction of that of the Old World cereal.

It is estimated that rice forms the principal food of more than one-fourth of the human race. In India and the East there are millions of people who scarcely ever taste any other food than rice with butter or some other fatty substance. Like wheat it has many varieties, and is adapted to culture under very varied circumstances, though as a rule it requires very much more moisture and more heat than other cereals ; and, therefore, we find it grows best in low-lying and alluvial and swampy countries like Bengal, a large part of China, Burma and the Malay Peninsula, and the Indian Archipelago ; as also in the swampy Southern States of America, and it has even spread into Africa. At the same time, rice is not such an important commodity of commerce as some other cereals, from the fact that it is largely consumed on the spot. Still the total value of the export of rice from India is double that of wheat, though the export to the United Kingdom is only one-half in value that of wheat.

Next to food, clothing is one of the greatest of human necessities, outside of the uncivilized tropics, where a string of beads is often the whole extent of a lady's toilet. Thus we find that what are known as textiles, either raw or manufactured, stand next to food materials in the commerce of nearly all civilized countries. The geographical distribution of clothing is to some extent the geographical distribution of civilization. The string of beads of Central Africa, like the skins of the Australian and Tierra del Fuegian, indicate the lowest stage of civilization. The Eskimo have got beyond this, for they had learned, even before the advent of Europeans, to sew their skins together, so that they have reached to some extent the manufacturing stage. Then we come to the stage reached by the man of the Pacific Islands and not a few tribes of Africa, where cloth is manufactured from grass or from the bark of particular kinds of trees. Next comes the stage when the hair or the wool or other covering of the animal is appropriated to the wants of humanity, and spun and woven into clothing; or it may be the fibres or other parts of certain plants, like flax, hemp and cotton. The textile made from flax-fibre, and known as linen, is one of the oldest forms of cloth known. So far as commerce is concerned, cotton and wool and their manufactures are the two most important of the textiles. Cotton, indeed, is one of the oldest clothing materials known, its use going back into remote pre-historic times; and it has this peculiarity that it is native to both the Old and the New World. In our own commerce, imports and exports, textiles and textile materials, bulk quite as largely as food materials. More than one-fifth of all our imports are the raw materials from which cloth of various kinds is made; and nearly one-half of our exports consists of textile fabrics in various stages. Of raw cotton alone we import 55 millions sterling, and of raw wool over 30 millions. The export of cotton manufactures reaches close on 100 millions, and of woollen manufactures 30 millions. While cotton is cultivated with success in south temperate countries, it reaches by far its greatest extension in sub-tropical countries. It is a staple of prime importance in India, China, and Egypt; in the United States it is only second in value of yield to wheat. The total yield of cotton in the world in 1906 was about 20 million bales of 500 lbs. each, and of that 13 million bales were produced in the United States, India coming next with 3,700,000 bales, and Egypt with 1,400,000 bales. In Brazil it is of some commercial value, while in many other parts of South and Central America it is grown; as well as in West and South Africa (where in recent years it has greatly extended), in Japan, in Australia. So far as trade goes, it stands high above everything else in the States; it forms one-fourth of the total exports, equal to about 80 millions sterling, though the value fluctuates greatly from year to year. The West Indies, from which we used to get much cotton, have dropped out of the market altogether, and Brazil has sank to a low percentage. After all, the area of the States from which the best cotton is obtained, that in which lime forms an important constituent of the soil, is comparatively limited; though the total area planted covers over 30,000 square miles. The Cotton States are the Carolinas, Virginia, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Indian Territory, Oklahoma, Missouri, Kentucky, Kansas, and Tennessee. The biggest yield is from Texas, where 4 million acres are under cotton; Alabama, Mississippi, Georgia, and the Carolinas, have each over 2 million acres. No doubt the abolition of slavery in the States made a good difference so far as cotton culture is concerned. It is a laborious business, the planting of the seed each year, the keeping of the ground in order, and the picking of the flossy stuff around the seeds, from which the textile is made. This is mostly done by black labour, and it is to be feared the negro, except under compulsion, is not much inclined to hard work. The cotton of the States, itself of two different kinds, differs somewhat from the cotton of India and the East, each being adapted to its special conditions; and one advantageous peculiarity of all cotton plants is that they send shoots deep down into the ground in search of moisture, so that the plant can be grown, as in India, under a very moderate rainfall. It is grown over nearly the whole of the Central Indian table-land, and is exported (raw) to the value of about 14 millions sterling, besides about 10 millions manufactured. Twenty years ago the import of raw cotton from Egypt was only about one-half the value of the Indian import; it is now over 20 millions sterling. In Egypt it is the staple export, and is cultivated over an area of over a million acres; it has been considerably extended since the Mahdists were cleared out of the whole of the Nile Valley. Cotton has been grown in Queensland, and no doubt is capable of development there and in other parts of Australia, could the necessary labour be obtained. It has been tried in Natal with no great success, though it promises to become an important product in West Africa, and in the Nyasaland Protectorate. In time other parts of Africa may be made to grow this important commodity besides Egypt; but so far the success can hardly be said to be very striking. At present there is no lack of supply for the world's demand. Nearly one-third of what the United States produces—*i.e.*, 1,600 million lbs. weight, is exported to Great Britain, which leaves us 600 million lbs. weight to get from elsewhere, for our import of raw cotton has grown from 99 million lbs. weight in 1815 to 2,200 million lbs. weight now.

All the commodities we have dealt with up to the present are products of the surface of the earth, and therefore largely dependent on topographical and general geographical conditions. There is much hope that both in South America, in Africa, and in the unopened part of Asia, there are possibilities of greatly extending the culture of all of them. The conditions under which they can be grown are well known; and one of our first cares in any new country, especially if it forms part of our Empire, should be to institute such observations as will enable us to decide for what particular cultures it is adapted.

The other important textile to which I shall refer differs from cotton in that it is an animal and not a vegetable product. But as the sheep and its cousins, the alpaca, the llama, the goats of various kinds, are all dependent on herbage of some kind for existence, and as the quality of the wool depends largely on the nature of the herbage, on the climate and on other surface conditions, it is evident that a knowledge of its geographical distribution, actual and possible, is of vital importance to commerce. Wool is even an older manufacture in these islands than cotton; but, though the manufacture of woollen goods in this country is an industry of high im portance, it does not hold the rank of cotton. While we import sheep's wool to the weight of over 600 million lbs., our import of raw cotton comes to about 2,200 million lbs.; while our export of woollen manufactures is a little more than one-third in value of the cotton goods exported. But it should be remembered that England is herself a wool-producing country, and has reared some of the finest breeds of sheep, although she has no longer the importance she once had in this respect. Indeed, young Australia has out-distanced all other countries in the production of wool.

The sheep has been reared as a domestic animal, and its fleece used for making clothing materials from a remote period, long before the beginning of history. England has been known as a wool-producing country for centuries, and some of her wools, such as those of the Leicester and Lincoln breeds of sheep, are still famous; and it shows the influence of local conditions, that outside of the counties after which these breeds are named, the only counties in which the wool maintains its high quality are Nottinghamshire and Yorkshire. But though we still export a certain quantity of home-produced wool, our supply has long ceased to be sufficient for the wants of our industries. English sheep were introduced into North America, Australia, and South Africa; but it was soon found, in the two last-named regions, that they were not adapted to the climate and other local conditions, and the results were disappointing. Other breeds were tried, principally the Merino breed from Spain (which was once a great wool-producing country), with the result that by careful inter-crossing, Australia produces the finest breeds of sheep in the world, so far as quality of wool goes. The Cape Merino sheep, though not equal to the Australian, is, nevertheless, of high quality. In the States and Canada, again, not so much attention has been given to the industry, and the consequence is that the wool of North America is of inferior quality. On the other hand, sheep-farming is one of the most important industries in the Argentine Republic and Uruguay, where the actual quantity produced is as great as in Australia. There is no doubt that by studying the conditions of any country, and adapting the breed of sheep thereto, wool of high quality can be produced anywhere, except in the low-lying tropics. But then the quality, or at least value, of the wool is often affected by surface conditions. Thus the Argentine wool gets mixed up with all sorts of impurities while on the sheep's back, so that the actual yield of clean wool is much less than in the case of either Australia or the Cape. The climate of the great wool-producing countries, Australia, the Cape, and the Argentine, is well adapted for the sheep, not being subject to great excesses of temperature; they all, however, suffer from lack of water, therefore the number of sheep in these countries, although absolutely large, is small, compared with the area. Were these countries much better watered than they are, agriculture would probably take the place of sheep-farming. The want of a complete system of communication is a drawback, and necessarily diminishes the profits of sheep-farmers in remote districts, but in the Cape, Australia, and the Argentine, great progress has been made in recent years. In some places—in Queensland, for example—it costs as much to take the wool in wagons to the nearest railway station as it does to convey it across the ocean to England.

The total production of unwashed wool in the world is about 2,000 million lbs. annually. Of that Australia (including New Zealand), contributes over 500 million lbs., or one fifth; the Argentine Republic about 400 million lbs.; Europe, inclusive of England, about the same; and the United States, 300 million lbs. The yield of the United Kingdom is about 135 million lbs., and of that we export about 25 per cent.; of sheep and lambs' wool alone we import about 640 million lbs. (in addition to what is obtained from sheep and lamb skins imported, about 30 million lbs.), but of that about one-half is re-exported to the Continent, so that our total consumption of wool for manufacturing purposes is about 380 million lbs. annually. Of the wool imported about two-thirds come from our own colonies, and of that four-fifths come from Australia and New Zealand. We get about 48 million lbs. from South Africa. The foreign countries from which we draw the largest supply are the Argentine, Russia, Turkey, and France. There are about 90 million sheep in the Australian colonies, and about the same number in the Argentine and Uruguay. There are other animals of the sheep kind that produce wool, differing, in some respects, from that of the sheep, There is, for example, the Angora goat, which was imported from Asia Minor into South Africa, where it thrives famously; its wool, under the name of mohair, forms an important export of that district.

One of the most interesting and instructive lessons in commercial geography is that learned from tracing the history of the introduction and adaptation of the sheep of Europe to the new conditions which exist in Australia and South Africa. It is simply a question of adaptation to geographical conditions; and if a similar process could be adopted with reference to mankind, the difficulties connected with the development of tropical countries might be more easy of solution than they are. But, both with cereals and cotton, with sheep and cattle, there are similar problems to solve in the territories that have been added to the Empire within the last 20 years, especially the territories in South, West, and East Africa. If has been stated that British East Africa might be made a fine wheat country; but those who know it best tell us that in the districts nearest the coast, at least, there is not enough moisture for even the poorest wheats.

Next to food and clothing, in commercial importance, come mineral products, and among them stand in the first rank coal and iron, higher even than gold itself. Unfortunately there is this difference between the vegetable and animal products we have been considering, and the mineral products with which we shall deal briefly; the former are practically inexhaustible; they can be renewed from year to year, and the area from which they can be produced extended, as the necessities of humanity, including those of industry and commerce, demand. In the case of minerals we cannot manufacture them. Under the surface of the earth there is an enormous supply of coal and iron, copper and tin, gold and silver, and other commodities, but that supply is not unlimited. Yet we cannot conceive its ever being entirely exhausted, or that if any one thing should run out, the inventiveness of science could not succeed in finding a substitute.

Coal and iron, we have found already, have been to a great extent the making of this country, and therefore of the British Empire. Our iron ores might get exhausted, and we should not be much worse off; as it is we import very large quantities. But if our coal were to give out, what would become of us? It would be rather a sad day for England when coal should have to be imported into Newcastle; though some theorists are even hopeful in the prospect of such a contingency, and fancy that some substitute in the shape of petroleum, or some adaptation of electricity, or utilization of the sun's heat, might be adopted successfully. But in the meantime our wisest plan is to make the best and most economical use of our coal while we have it, and endeavour to discover some means by which we may work it at greater and greater depths.

It is worthy of note that it was not till the thirteenth century that we find any unmistakable reference to the use of coal in England, though some discover allusions to it in the eighth century. By the end of the thirteenth century its use had spread to some extent, for we find a Commission appointed in London, "to inquire of all such who burnt sea-coal in the city, or parts adjoining, and to punish them for the first offence with great fines and ransoms, and on a second offence to demolish their furnaces." Of course this could not last, and the commercial importance of our coal was soon recognised, although it was not till long after the thirteenth century that it took a leading place among our exports. So long as wood was plentiful, people preferred that to coal; it was so much easier to get, and so much better suited to the household arrangements of the time. Moreover, wood or charcoal is much better adapted to iron smelting than coal, though science has succeeded in overcoming the disadvantages of the latter. It is a well-known fact that iron smelting was carried on in Kent and Sussex down even to the seventeenth century, and only died out after the forests of the Weald were exhausted. The total area of the coal-fields of Great Britain covers about 1,200 square miles. Belgium was really the first country to work coal on any scale.

Our great coal mines lie in the north of England —in Northumberland, Durham, Lancashire, and Yorkshire; in Derbyshire, Notts, and Staffordshire; then in Glamorgan and Monmouthshire; and in Scotland—in Lanarkshire, Ayrshire, Linlithgow, and the neighbourhood of Edinburgh. Newcastle is no longer the port from which the largest export of coal is shipped; in 1905, Cardiff shipped 14½ million tons to 9 million tons shipped from the Tyne ports.

The total output of coal in Great Britain (that of Ireland is insignificant) amounts, at the present day, to about 230 million tons a year, and of that 45 millions are exported, leaving over 180 million tons to supply our own wants. Forty years ago the output was only 110 million tons, and the quantity used has gone on increasing ever since. Now there can be little doubt that, in time, we shall come to the end of our supply, though that will not be so soon as some gloomy prophets predict. As a matter of fact, though our output still goes on increasing, the rate of increase is gradually diminishing. The question for the future will be,—Will it pay to bring coals from Belgium and Germany, from Canada and the United States, from China, or elsewhere, to enable us to work our iron ? Even if it does, it is evident that the necessity of importing our coal would place us at a decided commercial and strategical disadvantage. The export, large as it is, would, if it were stopped, in the end go but a little way to eke out our supply.

The most productive coal-fields in Europe, besides our own, are those of Germany and Belgium, the output of the former being steadily on the increase. The German coal-fields cover an area of 1,800 square miles, mostly in Prussia, around Breslau, Dortmund, and Bonn. The annual yield (exclusive of lignite) is about 120 million tons, double what it was 20 years ago, and the article figures for a considerable sum among the exports. The Belgian coal-field covers over 500 square miles, yielding about 22 million tons of coal. Although the French coal-field covers 2,000 square miles, its output is only 34 million of tons, but that includes lignite. Russia in Europe has a coal-field covering 20,000 square miles, but at present the output is only 18 million tons, though it has been steadily increasing, and will no doubt be of more importance in the future. Spain has coal over an area of 5,000 square miles, but the output is not worth noting. Of the total coal production of the world, Europe contributes probably about 450 millions. At the present moment the coal-fields next in importance to those of Europe are undoubtedly those of the United States of America. In the Eastern States alone, and mainly in Pennsylvania, coal is found over an area of something like 200,000 square miles, and it is known to exist in great quantities further west. For the latest year the output is 380 million tons, considerably more than double what it was 20 years ago, and it is growing by leaps and bounds; it is thus evident that more coal is produced in the United States than in Great Britain. In a few years later the output may well exceed that of all Europe. A considerable proportion of the American coal is what is called anthracite, which is not suited for all purposes. When, alongside that output of coal, we remember that the yield of pig-iron in the United States is about more than double the produce of our own country, 23 million tons, it will be seen what a pull our grown-up child will have over us in time.

Canada is well off in the matter of coal. It is found over an area of 80,000 square miles, but as yet this resource has been inadequately developed. It exists in large quantities, both on the east and west of the Dominion, but the output has not yet reached large dimensions. Chile has extensive coal mines, and others have been discovered in Lower California, so that the future of America is secured, so far as its coal supply is concerned. The coal area of New South Wales, though not nearly so extensive as that of Canada, yields a larger output, 7 million tons, and there can be little doubt that other coal-bearing areas exist in Australia. New Zealand is at present fairly well off for coal. The yield is about 1½ million tons annually, not enough to supply the wants of the colony.

India has an extensive coal area, and the yield is over 8 million tons, though the coal is not all of the best quality. However, when we remember the character of the climate of India, the want of coal is no great drawback so far as domestic requirements go. All the more so when it is borne in mind that in Borneo and other islands of the Malay Archipelago, and most of all in China, there are enormous supplies; in China, indeed, practically inexhaustible, according to the greatest authority on the subject. So far as we at present see, China and the United States promise to be the great sources of coal supply in the future; and unless specialists are mistaken, the great country on the western shores of the Pacific will take the lead of that on the eastern shores. There is coal in every province of China. In many places the coal crops out on the surface; there is abundant river communication, and railways are being rapidly constructed so as to facilitate easy and cheap communication with the mines. The old and true carboniferous formations lie in the province of Hunan, which basin may be compared with the rich Pennsylvania deposits. It has an area of 22,000 square miles. But far more extensive and rich coal-measures are found in the northern provinces, spreading over 25 degrees of the meridian, from the western districts to the Yellow Sea. Iron ores abound in Shansi, a chief centre of these deposits. Not only are these coal-fields exceedingly rich, but they may be worked far more easily than any other coal-fields in the world, owing to the lie of the beds. The seams are exceptionally thick and horizontal, and in many places have been denuded right down to their base, so that the coal has simply to be quarried, not mined. This particular supply spreads over an area of 35,000 square miles, mostly a plateau. In the same region are rich deposits of iron and copper. Thus we see what enormous resources exist in China. What will be the future of this strange country it is difficult to predict. The people are slow to change; but they are yielding to the outside pressure that is being brought to bear upon them with ever-increasing force. The enormous mineral resources of their extensive country, and its great agricultural capacities, must be utilized for the good of the world. There are many signs that important steps are being taken in the direction of progress; railways have been opened to the extent of about

4,000 miles, and must spread, so that in time the Chinese factor in commerce and politics must take a place of the first importance in the world. Japan also has its coal, but it is not likely ever to become of commercial importance.

Such briefly, is the distribution of coal over the face of the earth, so far as known at present. It is evident that in no very long time Britain must cease to hold the place she has held so long in the coal supply of the world. It seems a sad fact, but one which we ought to face with our eyes wide open, and our intelligence on the alert, to meet it with all the knowledge we can avail ourselves of. After all, the results of the exhaustion of our coal supply might not be so disastrous as one is apt to fancy. There is no sign of any exhaustion of our iron supply. The quantities of iron ore raised now is much the same as it was 40 years ago—from 13 to 16 million tons annually, in addition to which we import some 7 million tons, largely from Spain. Our coal and our iron, combined with our geographical position, have helped to give us the enormous start we have had for generations in the commerce of the world. How far our present position is dependent upon these resources, would be an interesting subject of inquiry.

The geographical distribution of iron is almost co-extensive with the distribution of coal. The annual output of iron ore in the United States is now much greater than it is in Great Britain, and it is increasing in about the same ratio as the output of coal; while the consumption of pig iron has increased from 2 million to 24 million tons in 35 years, which shows the progress being made in the States in iron manufactures. On the Continent Germany is the greatest producer of iron ore, the output steadily increasing year by year, until now it reaches 24 million tons, four-fifths from Prussia, Alsace-Lorraine, and the neutral territory of Luxemburg. France produces only about a fourth of the yield of Germany, and both she and Belgium have to import largely for their extensive iron works. Austria and Russia produce comparatively little, though in both countries the output is on the increase, and there is no doubt that Russia at least has large resources untouched. Over five million tons of ore are produced in Sweden (five times what it was 20 years ago), and the output is on the increase, for mining is one of the most important of Swedish industries. Spain exports nearly the whole of her ore (8 million tons) to us. Twenty years ago Great Britain's production of iron ore was almost equal to that of the whole of Continental Europe; but that is no longer the case, we are now exceeded by Germany alone, though no other country yet equals us in iron industry, and certainly not in metal industries generally. Iron ores are found both in Algeria and South Africa, though to what extent remains to be seen. We have referred to the enormous supply untouched in China, and the mineral no doubt exists in India. Canada is rich in iron ores, and when the railway system is still further extended, it may become an important export.

Thus there is not much danger of the world's stock of iron being exhausted. The great point is, so far as British commerce is concerned, would it pay us to import coal to work our own ores? If it did not, how would our commercial supremacy be affected? What are our sources of wealth, and therefore of power? No doubt metal manufactures are a highly important export, but textile manufactures far more so. We are no longer a great agricultural country, but we are none the less powerful for all that. We have still our enormous commercial fleet, and our lucrative carrying trade. We have still our eminent geographical position between the New World and the Old; our position as a distributing centre is scarcely less advantageous than ever it was. The problem is a nice one to work out—What are the real elements of Britain's commercial supremacy, and how far are they likely to be affected by the development of new countries, the discovery of new sources of supply, the establishment of new trade routes? I commend the problem to the consideration of those interested in Commercial Geography.

Gold can hardly be called a commercial commodity, though its unique position and vast importance everyone must admit. It is found almost everywhere in greater or less quantity, but only in a few places in such quantities as to make its working remunerative. The total annual yield of gold in the world probably amounts at present to about 55 millions sterling, double what it was twenty years ago, mainly due to the development of South

African mines. It seems bound to increase. At present, in South Africa, gold is found in reefs, mainly of quartz, and therefore requires expensive machinery to crush it. But the extension of the railway from the Cape, northward to the Zambezi, has greatly decreased the expense of crushing, as it enables machinery to be conveyed at a cheap rate, and in other ways diminishes expenses. This South African Gold would be of immense utility if it were employed to furnish the capital wherewith to develop the other resources of the great area of South Africa now within British influence, just as has been done in Australia. At present the greatest supply of gold comes from South Africa, more even than from Australia. Next come Australia and New Zealand with 17 millions annually, showing an increase of three times what it was 20 years ago. The total gold output of Australia since the first discovery, 60 years ago, has been 470 millions sterling. Next comes the United States with an annual output of about 17 millions sterling. The total production since 1848, when gold was discovered in California, has amounted to about 500 millions sterling. Russia, which used to be the great source of gold supply, still yields about 4½ millions sterling annually, mainly from the Ural Mountains and Siberia. This accounts for more than four-fifths of the whole gold supply of the world; other countries yielding it in payable quantities being the Republic of Columbia, Venezuela and British Guiana, Mexico, Brazil, and Canada. Probably, in the future, a considerable supply may come from Peru. The tendency of all gold mines, hitherto, has been to rush up to a maximum of output, and gradually diminish ; so that it seems quite possible that in time our present great sources of supply of this precious metal may be exhausted. What would happen if the gold supply of the world were to run out, it is hard to say ; probably the bi-metallists might become reconciled to their adversaries. It may be of interest to state that the consumption of gold in the industrial arts of the world, probably amounts to over £10,000,000.

In concluding, let me repeat that my main object has been to give some hints and illustrations as to the various ways in which geography can be applied to the interests of industry and commerce. If I have been able to succeed in what I have been aiming at, it must be evident that the two departments are intimately connected, that to a great extent the one is the outcome, the practical application, of the other. Directly or indirectly, every commodity of commerce is a product of the earth's surface in its most comprehensive acceptation, and subject, therefore, to a greater or less extent to the conditions which prevail on that surface. The business of Geography is to deal with the earth's surface, and with the topographical relations of all the features which are found upon it ; and it therefore seems to be an axiom that its bearings on commercial interests ought to be of the most intimate character. In the present chapter I have dealt with a few of the leading commodities of commerce; we might have entered, in minute detail, into all the conditions that may be regarded as geographical, which affect the production of these commodities from a commercial point of view. This anyone can do for himself; at least he ought to be able to do so, if the hints I have given have been of any avail. In the same way, if your business or your interest lies in any particular region, or any particular country, your first step is to master the geography of that region in the comprehensive sense of the term adopted in these pages. Follow the details of that geography out in all practical directions that have any bearing on the interests of commerce. For those who have the larger commercial welfare of this great Empire in their keeping, it is not only their interest, but their duty, to master every condition that has any bearing on the game; for game it is, in which the commercial and political supremacy of this country is at stake. I am sure we all believe that it is not only to our own interest, but for the good of the world, that the English speaking race should be supreme, and not any other; or at least that no other should get ahead of that race. Our commercial rivals, judging from their practice, seem to believe that geography may be made of the greatest service to commerce. I hope I have been able to convince the reader that it may be so, and that some at least will find it both interesting and profitable to follow out in detail the hints I have been able to give.

CHAPTER VI.

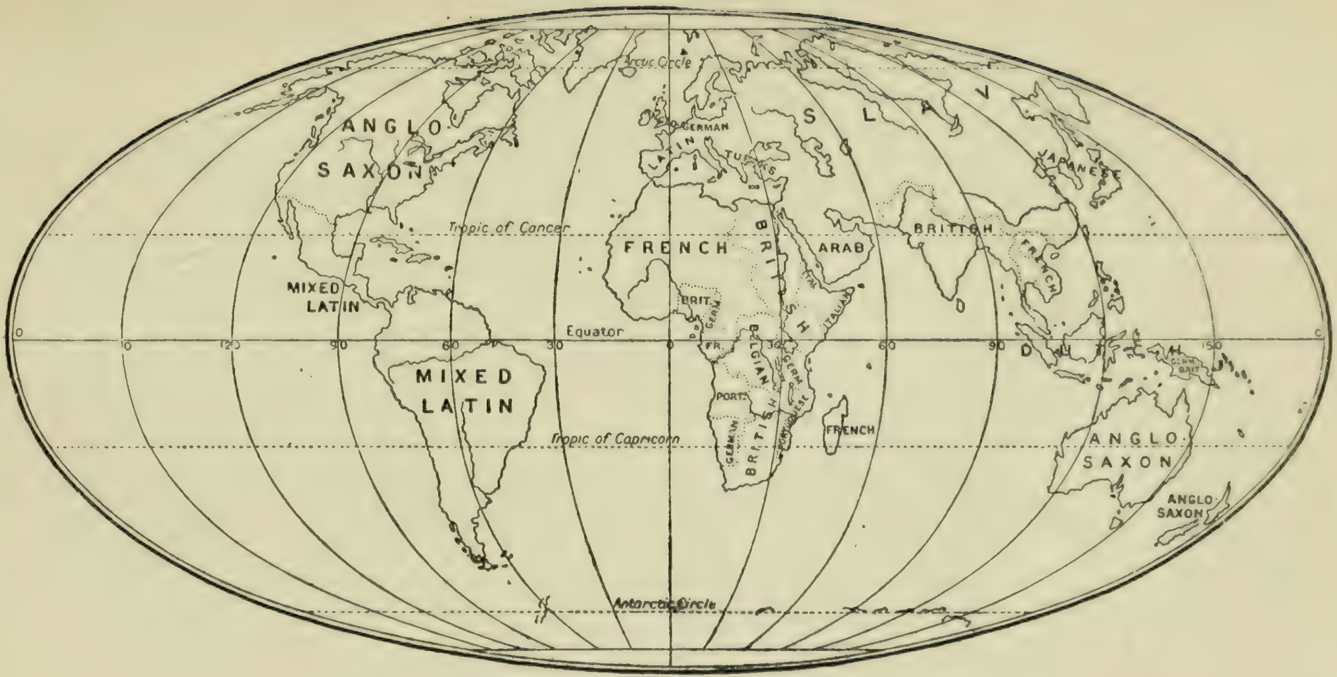
THE UNSTAKED GLOBE.

AS I write, the Christmas number of the *Bulawayo Chronicle* lies on my table. In a gorgeous cover, it is twice the thickness of the Christmas number of any London weekly. Its handsome pages are adorned with scores of illustrations that would do credit even to the Press of the Mother Country, while the reading is full of local colour and eminently entertaining. All this is the product of a town (it would be a city in America) in which handsome public buildings, great hotels, scientific institutions, and private villas are being reared on a space over which, barely 15 years ago, spread the kraal of a savage chief, a "habitation of horrid cruelty," surrounded by impis of bloodthirsty warriors. But "that's all shoved behind" us, and in the short space of 15 years the extensive lands terrorised by Lobengula and his warriors are being studded with cities and towns and farms and mining centres. About a quarter of a century ago expensive expeditions were sent out to explore this then unknown land, which would take months to reach their goal from the Cape; now, by steamer and rail, one may be in Buluwayo in about twenty days from London.

On the other side of the Equator another city is rapidly growing up, with its palaces, its colleges, its palatial hotels, its clubs, its public gardens, where only eight years ago the shadow of death and the terror of merciless fanaticism brooded over all the Sudan.

Here are two instances by which we may measure the rate at which the available lands of the globe are being occupied and utilised by Europe and Europe's off-shoot, the United States of America. We have already seen the changes that have taken place in Africa within about a quarter of a century.

During the same period, Europe, and latterly America, have been busy in Asia, with its seventeen million square miles, including its great fringe of islands. Here we have in operation a new factor, Russia, which has only flirted with Africa; her advance over Asia has been so persistent and effective that directly or indirectly she claims some seven million square miles of the continent. Great Britain cannot claim much more than two million square miles, while France, Holland, and the United States have only a million among them (Holland 740,000 square miles). Turkey's 730,000 square miles in Asia may be said to be in a state of



The World: Spheres of Influence of Dominant Races.

unstable equilibrium, and so, indeed, is the case with the 640,000 square miles of Persia, the 260,000 square miles of Afghanistan, and the 240,000 square miles of Siam. No European Power is likely to trouble much about the million square miles which constitute the independent portion of Arabia ; it is mostly a continuation eastwards of the Sahara. The one country in Asia which the four pushful Powers of Europe (and the United States is not indifferent) are all eagerly watching, is the Chinese Empire, which in its widest extent, covers considerably over four million square miles. But that includes Tibet, 652,000 square miles, the Lhasa district of which, with its rich land and its almost virgin gold mines, is the only portion worth having. Japan, with its insignificant 150,000 square miles, is the one native State in Asia which European Powers respect ; Korea has gone to Japan as the result of the latter's effective check to Russia's advance. Altogether, it may be said that something like ten million square miles of Asia are in the hands of peoples of European origin. Of the remainder, China is the great prize, but since the victory of Japan over Russia, the Chinese have shewn that they are likely to look after themselves. But Persia, Afghanistan, Siam, are bound to be swallowed up by the peoples who can develop their resources. Russia, Germany and France may be said to be keeping a watchful eye on the Sultan's Asiatic domains ; Russia and England on Persia and Afghanistan, and France and England on Siam. The scramble for these lands is inevitable in the near future. When these go, barely four millions of square miles, less than a fourth of the area of Asia, will remain outside of European spheres.

As to America, that has been more or less Europeanised long ago, but except Canada, unlike Asia and Africa, it is entirely independent of European suzerainty, and the thread that binds Canada to the British Empire is of the most fragile character. America is, indeed, a new Europe on the other side of the globe, and this most European of the independent States has followed Europe's example in thrusting its suzerainty over lands far beyond its own shores. It may be said that America is almost equally divided between two of the great European races—North America, seven million square miles, being under essentially Teutonic or Germanic, mainly Anglo-Saxon, dominion; and Central and South America, about eight million square miles, in the hands of what are known as the Latin races,—Spanish, Portuguese, Italian. North America is almost wholly Europeanised; in Central and South America the native element still plays an important part, directly or indirectly, and it is therefore at a much more backward stage; moreover, its population is only about half that of North America.

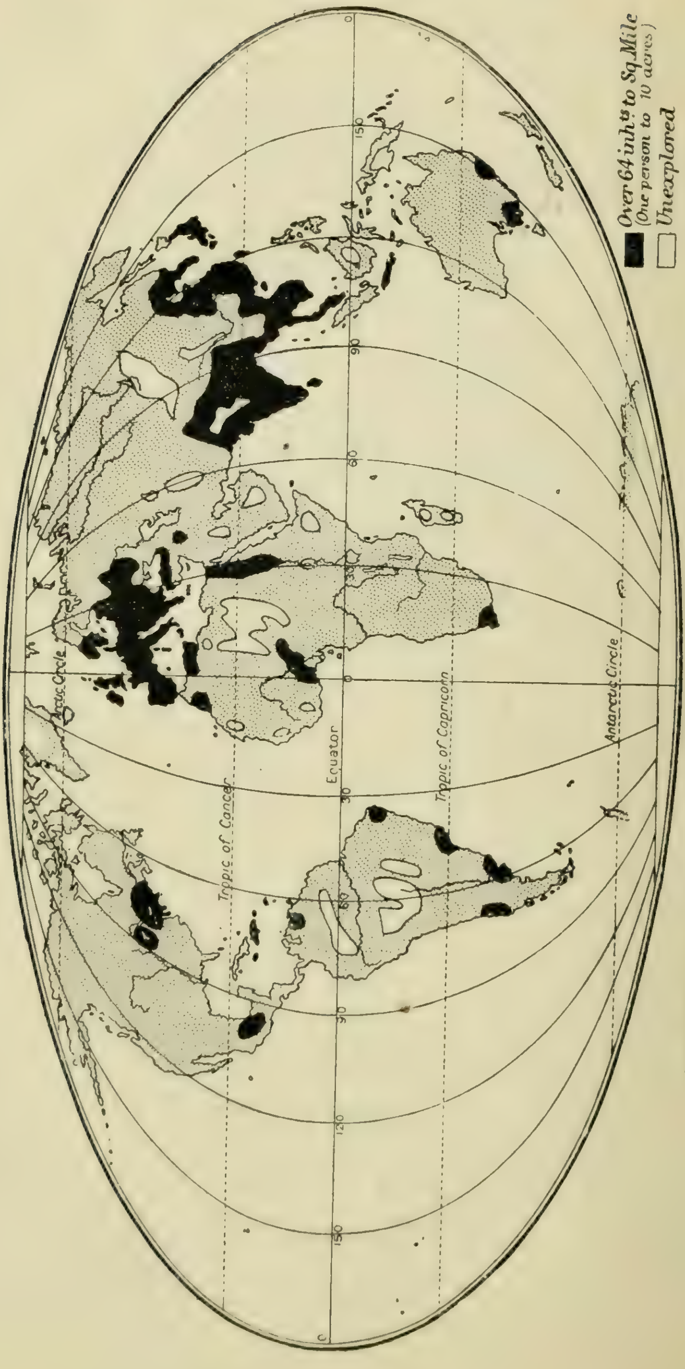
Of the remaining great land mass, Australia, it may be said that as far as the geographical conditions admit, it is wholly Europeanised; the native element is insignificant, and in New Zealand at least, is an integral part of the population. As to the Pacific Islands, they are almost equally divided between England, France, Germany and the United States.

Thus the whole of the five continents, with their islands, are, with the exception of Asia, directly or indirectly in the hands of Europe, or at least of peoples of European origin. Of the 47 millions of square miles of land which may be said to be available for human use, only some seven million square miles are at present dominated by peoples of non-European origin, and even of that a considerable portion is regarded as more or less within the sphere of some European Power.

It is of interest to note that of the 42 millions of square miles of attached available lands, a little over 17 millions have fallen to the share of the English and peoples akin to them, Germans, Dutch, Swedes, Norwegians, Danes. Of Europe itself only about a million out of the 3,750,000 square miles is dominated by what we may call Germanic races, Slavs, Latins and Turks having the remainder. America, as has been stated, is almost equally divided between Germanic and Latin peoples. In Asia the Slav domination is more than three times that of the British, the only Teutonic people that have anything beyond a patch in Asia, while the Latin is only about one-eighth of that of England. Australia and New Zealand are wholly British, and therefore Teutonic, while in Africa, the two Teutonic peoples, England and Germany, have four million square miles between them, the Latins (French, Belgian, Italian, Spanish and Portuguese) absorbing most of the remainder. If, however, we deduct the areas more or less under Slav and other non-Latin domination, we find that Latin peoples have only about 15 millions of square miles as compared with the Teutonic 17 millions. The Slav element covers some nine million square miles, while the Turk rules over a million.

If, again, we assume the total population of the globe to be now roughly (for exact statistics throughout are not available) 1,600 millions, we find that of these some 750 millions, or nearly one-half, are dominated by peoples of Teutonic origin, while only about 250 millions are under the control of Latin peoples, and about 140 millions under the sway of the Slavs; 100 millions are dominated by Turks, and 400 millions by people of Chinese affinities; the remainder by various odds and ends of humanity. Of course the peoples thus variously dominated are composed of a great variety of races, white, yellow and black; into details of this kind it is not possible to enter here, our object being simply to indicate the share which the great ruling races have in the land and in the population of the globe. In both aspects little is now left to scramble for, unless some ambitious Power is prepared to enter upon a great war with one or other of its rivals.

But although almost six-sevenths of the lands of the globe have been overlaid with the colours of Powers of European origin or affinities, it by no means follows that they have all been effectively occupied or even completely explored, far less developed as to their resources. Although even Europe has not yet been completely mapped, still



THE WORLD: CENTRES OF POPULATION AND UNEXPLORED REGIONS.

it may be left out of account from that point of view. Of Asia extensive regions are even yet practically unexplored. Not only has a large area of Southern Arabia been unvisited by any European, and the rest is but imperfectly known, but much of Tibet proper, and the regions bordering it on the north and north-east, and even the south-east, are practically blank on our maps. Considerable areas to the north-west of Tibet and within the Russian sphere, are most imperfectly known. Indeed, the only thoroughly surveyed countries in Asia, are India and its dependencies, Japan, Siam and certain sections of the Russian sphere, mainly along railway routes. China is roughly mapped, but the gigantic task of surveying it has still to be carried out. Patches here and there in Western Asia have been fairly well mapped, but as a whole the great continent is either unmapped or mapped in only a very rough fashion.

It is even worse with Africa, as might be expected. Great areas are absolutely unexplored, or only crossed by a few travellers' routes. Algeria and Tunis have been or are being surveyed in detail, while a geodetic network covers Cape Colony, and is being carried northwards, though that is of little practical use except as the basis for detailed maps. The Uganda Railway route has been triangulated, and the French are busy surveying Madagascar, while detailed surveys are being carried out on the Nile. Surveys have been recently established in various Colonies in Tropical Africa, while boundary commissions have done a good deal of accurate work. Most of the coast line has been accurately laid down. Maps of the whole of Africa are available; some of them are fairly satisfactory as to their main features, but on the whole they are of the roughest character, and based on the crudest materials. Still a vast deal has been done in the last twenty-five years for the exploration of Africa; it is covered by a network of routes, but the wide meshes within that network are to a considerable extent untouched. Until the Powers have their territories thoroughly mapped, it is impossible to form any adequate idea as to their economic capabilities. The Sahara, naturally, has many patches of obscurity on its surface, though the French have been busy in recent years covering that surface with routes; no doubt much of it is, at present at least, negligible, but its plateaus and ranges—Ahaggar, Tibesti, Asben—and the region within Atlantic influences, deserve careful investigation. Of the Central Sudan and the Congo Free State interior, we have still much to learn.

North America is being rapidly surveyed in a thoroughly efficient manner, though much of the country in British Columbia and the North-west Territories is still but imperfectly explored, probably about 800,000 square miles. There are great blanks of unknown or little known territory in Mexico and Central America, while South America has as much unexplored (some 2,000,000 square miles) and nearly as much unmapped and imperfectly mapped land as Africa. Exploration in the immense Amazon basin has been mainly along its rivers, and enormous areas of the dense forested areas between the rivers have never been penetrated, at least by white men, and probably not even by natives.

Under the various survey parties sent out by the Governments of Argentina and Chile, the territories of these States are being rapidly mapped and their capabilities ascertained; while the boundary dispute between the two countries has led to a very thorough explanation of the great mountain range that forms their common borderland. But in the other South American Republics—Brazil, Peru, Bolivia, Ecuador, Colombia, Venezuela—comparatively little has been done to map the country, and this is so even in the three Guianas, the interior of which is an almost unknown land. This, indeed, might be said of all the country lying to the north and north-west of the Amazon right into Eastern Ecuador and Colombia and Southern Venezuela. With the exception of parts of the Argentine and Chile, the mapping of South America as a whole is of the most unsatisfactory kind.

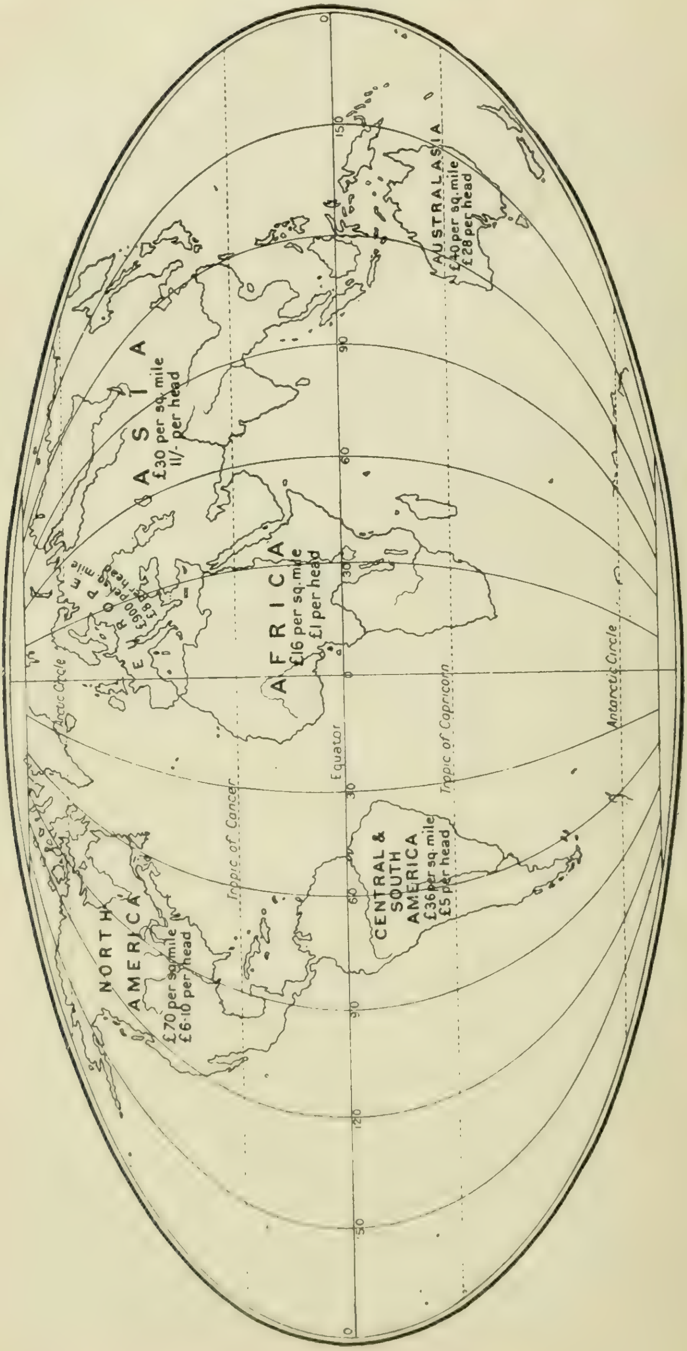
As for Australia, there are still unvisited blanks in the heart of the continent, but the character of those tracts can be only too readily guessed at. New Zealand as a whole may be said to be well known, and so also south-east New Guinea, the broad western half of which has never been crossed.

It may, then, be said that in Asia, in Africa, in South America, there are immense areas of which our knowledge is of the vaguest character, so vague that we have no clear idea of their physical features, no means of forming an adequate estimate of their capabilities. Even as regards Northern and North-western Canada, we are only beginning to obtain the materials for filling up our maps and estimating its uses to humanity. Of Australia, though so much is unknown, we can form a fair forecast of what is its economical value.

We have thus shown how the lands of the globe have been divided up among those peoples most capable of turning them to the best account, and to what extent our knowledge of those lands is of such a character as to be of practical value. Briefly, let us see what proportion of the lands (including Europe) dominated by the various races is of such a nature as to encourage their direct development by those races themselves, who, it should be noted, all originate in the temperate zone. Of the total area of the British Empire, over 11 million square miles, some 42 per cent is tropical, though a considerable amount of that is in South Africa, in which the white man may very well become acclimatised; the bulk of the remainder is in Central Africa. Of the French Empire, three-fourths, 75 per cent., is tropical and half desert. Of the German Domain some 65 per cent. is tropical. Outside its European possessions, a mere fraction of the whole, Portugal is entirely tropical, and so it is with Belgium. Italy's outside possessions, just about double of the home territory, are entirely tropical. The United States is virtually a temperate country, the extreme south being subtropical. Russia's extensive territory is in the temperate zone, except perhaps about a million and a half square miles on the wrong side of the Arctic Circle, while of the remainder a considerable proportion is barren steppe. The oversea possessions of Holland are tropical. It may be said then that of the temperate lands of the globe, those most favourable to the development of human enterprise, a larger proportion is in the hands of people of Teutonic type than in those of any other race.

The problem of the possibility of acclimatising peoples of European origin to tropical countries is one of vast importance for the future, and one on which we should not dogmatise; reference has already been made to this aspect.

But it would be interesting, briefly, to estimate to what extent the lands of the globe have up to the present been economically and commercially developed. Space permits of our doing this only roughly. Various methods might be adopted ; one, which is beset with difficulties, and can only be regarded as comparative, is to take the value of the commerce of the various continents as a sort of measure of the extent to which they have been developed. We are quite aware that there is overlapping of figures, but as all are treated alike, we think the method may be taken as, on the whole, a fair one to test comparative economic development. Taking the latest available figures, we find that the commerce of Europe is equivalent to about £900 per annum per square mile of territory; but so densely populated is the continent that it is equivalent to only £8 per head. On the other hand, the commerce of Asia amounts to only £30 per



THE WORLD: COMPARATIVE PROSPERITY OF THE CONTINENTS.

square mile, and 11s. per head of the population. So far as area goes, Africa shows a commerce of only £16 per square mile, but this is equivalent to £1 per head of the population. The commerce of North America shows an average of £70 per square mile per annum, or about £6 10s. per head of the population; while that of Central and South America is only £36 per square mile and £5 per head. Australasia, considering the limited area of land available for development, comes out well with £40 per square mile and over £28 per head of population. Europe, the smallest of all the continents, is far ahead, mainly because its dense population is composed of the dominating and most energetic races of the world; and when North America, with its magnificent resources, is as densely populated as Europe, the result is likely to be, at least, as satisfactory. Nearly one-third of the whole commerce of Asia has been developed under the ægis of British rule in India. Africa, with an area of over eleven million square miles, three times the size of Europe, is, of course, far behind, though in the last twenty-five years its commerce has steadily increased. As it is, of the 180 millions sterling which may be taken as the value of its imports and exports, all but a fraction belongs to the Mediterranean States and Colonies and to British South Africa. Central and South America, under the lethargic Latin and half-breed races, appears unfavourably, and is not likely to show much improvement until it has an infusion of the Teutonic energy of the northern half of the continent. Australasia, again, an almost purely British land, with its comparatively small population and its enormous deserts, comes out with high credit. But it is evident from the standpoint of commerce that, except perhaps in Europe, there is ample scope for the development of the resources of the lands of the globe.

But let us, in conclusion, endeavour to form some estimate of the capabilities of these lands for further development and of the extent, from this point of view, to which it would be safe for the population of the globe to increase *(see map, page 150).* This we are able to do from the data worked out a few years ago by Mr. E. G. Ravenstein. The lands of the world, exclusive of the Polar regions, which may be left out of account, may be divided into fertile regions, steppe regions, and deserts. Excluding the Polar regions, the total area of the lands of the globe may be taken at 47 million square miles; of this only 29 millions are reckoned as fertile, 14 millions as steppe, and 4 millions as desert. Europe has no real desert, and four-fifths of its surface may be reckoned as fertile. Of Asia, nearly a third is set down as steppe, and one-twelfth as desert, while of Africa almost one-third is steppe, and a fifth desert. North America has a very small desert area, and less than a fifth is steppe, while South America has a still smaller desert area, but more than one-third steppe. Of Australia, quite a half is steppe, and a fifth desert. Estimating that under present conditions the fertile area will sustain 210 inhabitants to a square mile, the steppe 10, and the desert not more than one, on the basis of the present annual increase, Mr. Ravenstein comes to the conclusion that, so far as food supplies are concerned, the habitable lands of the globe would be filled up in about 180 years with 6,000 millions of inhabitants.

But that need not frighten us, nor indeed our descendants, for many generations. The rate of increase of the population, apart from wars, pestilences and famines, is not likely to be sustained, and it will probably be much longer than 180 years before the food supply of humanity gives out. Moreover, with improved methods of agriculture, with the spread of irrigation, and the application of scientific methods to the preparation of foods, the capacity of the fertile area may be greatly increased. As to the steppes, and even the deserts, we know, from actual experience, that both, with suitable irrigation, can be rendered fertile, and capable of sustaining a population much larger than ten times ten per square mile. There is plenty of water even in Africa, both above and below ground, and we need not doubt that science will find means to bring it where it is most wanted.

But what is the moral of all this?

Practically, except in Asia, the lands of the globe are in the hands of races of European origin, and the most and the best of them under the dominion of ourselves and peoples akin to us. We have a fair general idea of the geographical features and the economic and commercial characteristics of all the continents, but in Asia, Africa, and South America there are still extensive areas of which our knowledge is scanty, of whose capabilities, as far as the needs of humanity are concerned, we have a very inadequate idea. Commercially, with the exception of Europe, the lands of the globe have been little more than scratched; of the whole commerce of the globe, Europe, the smallest of the continents except Australia, absorbs three-fourths. The other continents have a vast leeway to make up commercially, as they have also in turning their lands to the best account for the sustenance of an adequate population. The fertile region of Asia is about four times that of Europe, while even Africa has twice as much fertile land, though its population is not much more than that of Great Britain, Germany and France combined. It is quite evident that there is ample scope for the energies and intelligence of those races that have the moulding of the world in their hands, and equally evident that that race will hold the greatest and strongest place in the future which knows best how to put to practical use the results of scientific discovery. Again, taking Buluwayo and Khartum as examples, may we not hope that, in spite of all our blundering and blindness, mainly official, our own branch of the great Teutonic race may be able to hold its own?

Such a hope does not necessarily argue a restless ambition on the part of Great Britian to extend her territorial influence, or to increase the extent of her imperial sway.

Our present policy, as seen in the federation of the Australasian Commonwealth, and in the almost complete independence possessed by the Dominion of Canada, is a sufficient proof that Great Britain has learnt the one and only secret of knitting together a world-wide empire into a great brotherhood with mutual interests and aims. The lessons of the past have not been forgotten, and the mistakes which resulted in the American War of Independence are not likely to be repeated. The downfall of the ancient empires of the past was largely due to a failure to recognise the true principles of colonial expansion, of which Great Britain has been, and is, the chief exponent.

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